Breast Cancer Foundation NZ

Rethinking Advanced Breast Cancer

Evidence, experience and opportunities in Aotearoa New Zealand

Te Rēhita Mate Ūtaetae
Breast Cancer Foundation
National Register

February 2026

Towards zero deaths: Education, research and support.

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Front cover images are for illustrative purposes only; some individuals depicted are models.

Foreword

This year, more than 350 people in Aotearoa New Zealand will be told they have advanced breast cancer (ABC). Also referred to as metastatic, secondary, or stage 4, ABC occurs when the cancer has spread beyond the breast and is generally incurable.

For those living with ABC, and their whānau, the emphasis shifts to cherishing meaningful moments, nurturing connections, pursuing passions, and upholding dignity amid challenges. Yet this journey often unfolds within a healthcare setting oriented toward curative outcomes, where early breast cancer (EBC) receives focused attention, and ABC—particularly recurrent forms—can feel under-prioritised, leading to fragmented support and unmet needs.

Our 2018 report, *I'm still here*, provided the first cohesive picture of the state of ABC in New Zealand. It illuminated these experiences, revealing feelings of isolation, stark inequities, and systemic gaps. It catalysed significant practice-changing advancements: expanded access to medicines, the development of ABC-specific consensus guidelines for Aotearoa New Zealand, and innovative tools like ABCpro to enhance symptom management. Yet true transformation requires us to rethink our approach.

In 2026, *Rethinking Advanced Breast Cancer* invites a shift in perspective: **seeing ABC not as a limitation but as possibility, empowerment and enriched quality of life**. Anchored in robust data from Te Rēhita Mate Ūtaetae, the Breast Cancer Foundation National Register, this report examines 6,148 metastatic diagnoses between 2000 and 2023. These insights are deepened by the firsthand perspectives captured by surveys of 105 patients living with ABC and 21 clinicians treating ABC.

The findings highlight encouraging progress: median overall survival reaching 21 months and 5-year survival exceeding 20% for diagnoses from 2016–2020, and narrowing ethnic disparities including gains across all survival outcomes achieved for wāhine Māori. At the same time, they reveal persistent barriers, including younger diagnoses among wāhine Māori and Pacific women, elevated relapse risks for Pacific groups, and communication shortfalls. Together with variations in surveillance after EBC across the country, these barriers can significantly undermine wellbeing.

The whakataukī *ko te pae tawhiti, whāia kia tata. Ko te pae tata, whakamaua kia tina* (Secure the horizons that are close to hand and pursue the more distant horizons so that they may become close) sets the tone for this report, reminding us that we should hold an ambitious long-term vision while advancing through deliberate, achievable action in the present. Informed by real-world data, this mahi (work) takes forward the insights in *I'm still here*, presenting progress to date and outlining action needed to advance equitable, innovative care and supporting New Zealanders living with ABC to experience meaningful moments.

This confluence of present-day action and visionary thinking reflects a growing global consensus: that with the right intent, coordination, and investment, ABC care can move beyond resignation toward hope. It challenges us to aim higher—to strive for better outcomes, to lessen the burden of disease, and to ensure empowerment and equity for all those living with ABC. This aspiration aligns seamlessly with Breast Cancer Foundation NZ's commitment to supporting New Zealanders with breast cancer to live well.

Rethinking ABC compels us to translate knowledge into action—standardising surveillance, addressing inequities, and integrating patient-centred innovations.

To all touched by ABC: Your quality of life, in every moment, is at the heart of our efforts. We walk with you, guided by lessons of the past toward brighter horizons ahead.

Justine Smyth, CNZM
Chair
Breast Cancer Foundation NZ

Executive Summary

Purpose

Breast Cancer Foundation NZ prepared this 2026 report, *Rethinking Advanced Breast Cancer: Evidence, experience and opportunities in Aotearoa New Zealand* to strengthen the national evidence base on advanced breast cancer (ABC), building on findings from our 2018 report, *I'm still here: Insights into living – and dying – with Advanced Breast Cancer in New Zealand*.

This work outlines the current state of ABC in Aotearoa New Zealand and identifies current priorities and challenges in improving care and survival outcomes. It is intended to inform decision-makers, clinicians, and other stakeholders across New Zealand who shape priorities, policy, and clinical practice for people living with ABC.

This report addresses key questions essential for understanding and improving ABC care in New Zealand, including who is diagnosed and when, how treatment aligns with clinical guidelines, the effectiveness of therapies, and factors affecting survival. It examines patient experiences with diagnosis, decision-making, and ongoing care, as well as healthcare professionals' perspectives on delivering optimal treatment. Finally, it explores what it is like to live with ABC, what care and survival expectations should be, and what improvements can be made to better support patients and their whānau.

Evidence and insights

Evidence is informed by robust national registry data from Te Rēhita Mate Ūtaetae – Breast Cancer Foundation National Register, which captures over 99% of breast cancer diagnoses, including 6,148 women diagnosed with advanced / metastatic breast cancer between 2000 and 2023. Insights are further enriched by surveys of 105 patients living with ABC and 21 clinicians treating ABC, providing lived-experience perspectives.

Since the publication of *I'm still here* 7 years ago, several practice-changing initiatives have been introduced in New Zealand, expanding treatment options, strengthening clinical guidance, and improving models of care for people living with ABC.

Notably, six medicines—many newly introduced—have been funded by Pharmac for ABC, significantly broadening access to targeted and systemic therapies across all ABC subtypes, including New Zealand's first targeted treatment for triple negative ABC.

The first national ABC-NZ clinical guidelines were published in late 2020, developed through an extensive, clinician-led consensus process to establish a consistent, evidence-based framework for care. Innovation in service delivery is also underway, with research progressing for ABCpro—a nurse-led telehealth symptom management programme using patient-reported outcomes to support symptom management and quality of life.

Building on this progress, the findings of this report highlight critical insights into ABC in Aotearoa New Zealand.

Key findings include:

Survival for people with ABC has improved over time, with median overall survival increasing to 21 months for those diagnosed in 2016–2020, and 5-year survival now exceeding 20%.

There are no significant differences in overall ABC survival between Māori, Pacific, and European women, indicating progress toward equity in survival outcomes.

Important inequities remain in patterns of disease, with wāhine Māori and Pacific women more likely to be diagnosed at a younger age and Pacific women continuing to experience higher rates of distant relapse over time.

Current surveillance practices for women after early breast cancer are varied across the country. More than half of patients (51%) were diagnosed with ABC only after presenting with symptoms, and the 5- and 10-year risks of distant recurrence remain 9.8% and 13%, respectively. This report provides the first near-national data on distant recurrence, highlighting an opportunity for New Zealand to take a forward-looking approach by standardising and investigating evolving surveillance practices to help anticipate and manage ABC more effectively.

The ABC cohort in New Zealand is older and predominantly comprises recurrent cases, most with hormone receptor–positive early breast cancer.

The risk of distant recurrence after early breast cancer has decreased substantially over time, with women diagnosed in 2010–2017 around one-third less likely to relapse than those diagnosed earlier.

Access to systemic therapy is relatively high and broadly equitable, with comparable proportions of patients treated across ethnicities and regions. Some disparities are apparent with age (older less likely to receive systemic treatment) and subtype (40% triple negative ABC not receiving systemic treatment). Clear survival gains are associated with receipt of at least one systemic therapy, with larger gains observed among patients receiving multiple lines of treatment. Addressing gaps in systemic treatment access and continuation could therefore yield further survival improvements.

Despite treatment and survival gains, patient experience remains variable, with one-third of patients in our survey reporting poor communication at diagnosis, highlighting ongoing gaps in care quality and support.

Future priorities

This report points to clear priorities for action to improve care and outcomes for people living with ABC in Aotearoa New Zealand.

Key recommendations include:

Standardise and evaluate evolving surveillance practices to ensure timely detection of metastatic disease, reduce variation in follow-up care, and inform future innovations in early intervention.

Fast-track diagnostics for suspected metastatic disease through clear referral pathways and rapid access to imaging, enabling prompt treatment decisions.

Embed ABC-NZ guidelines into routine practice, ensuring all patients receive evidence-based, consistent care across the country.

Ensure equitable access to treatment and support, addressing disparities for Pacific and Māori women, younger patients, and other high-risk groups, and reducing barriers to funded therapies and multidisciplinary care.

Strengthen symptom monitoring and patient-centered communication, integrating tools such as ABCpro and supporting clinicians to deliver timely, holistic care that prioritises patient empowerment.

Enhance community and peer support, making psychosocial care, practical supports, and patient networks a routine part of the ABC care pathway.

These priorities align closely with the ABC Global Decade Report's international goals, positioning New Zealand to lead in advancing ABC care. By implementing these actions, the health system can not only improve survival and quality of life for people living with ABC but also drive equity, innovation, and system-wide consistency across care pathways.

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1. Introduction

Ko te pae tawhiti, whāia kia tata. Ko te pae tata, whakamaua kia tina.

Secure the horizons that are close to hand
and pursue the more distant horizons so that they may become close.

This report, *Rethinking Advanced Breast Cancer,* brings together the current evidence and outcomes on advanced breast cancer (ABC)—also known as metastatic breast cancer (MBC) or secondary breast cancer—in Aotearoa New Zealand while looking ahead to what is possible. This whakataukī reminds us that meaningful progress requires both immediate action and a clear vision of the future.

1.1 Purpose and scope

In 2018, Breast Cancer Foundation NZ published *"I'm still here": Insights into living – and dying – with Advanced Breast Cancer in New Zealand*[1], the first cohesive picture of the state of ABC in Aotearoa New Zealand. The findings revealed a stark reality of life for New Zealanders with ABC and served as a catalyst for change in some areas.

This 2026 report evaluates our current reality for ABC, both internationally and locally. We revisit most of the original questions and ask some new ones, with the aim of maintaining focus on a group of patients whose reality is very different from that of people diagnosed with early breast cancer (EBC), and who often feel under-recognised and overlooked.

Information in this report can be used to

- Identify priorities, challenges, and inequities in ABC care and survival in New Zealand.
- Inform Te Aho o Te Kahu (the Cancer Control Agency), Manatū Hauora (the Ministry of Health), clinicians, NGOs, and advocacy groups to guide policies, care, education, research, and patient support programs.
- Build on *I'm still here* (2018) to strengthen the national knowledge base on ABC.

Key questions covered by this study

- Who is diagnosed with ABC and when? How has that changed?
- How do we treat ABC and is it in accordance with clinical practice guidelines? How effective is our treatment?
- How do patients feel about the way they were diagnosed, their role in treatment decision-making, and the care they receive?
- How do healthcare professionals feel about the resources available to offer optimal treatment today? What needs to change?
- What is it like to live with ABC? What could / should it be like? What should our expectations be of care and survival?
- What improvements, priorities, and mindsets should guide future ABC care and survival in New Zealand.

Following the 2024 release of *The Lancet Breast Cancer Commission* report, which identified ABC as one of five key areas of focus, if we are to reduce breast cancer death and empower individuals diagnosed with ABC to lead fulfilling and meaningful lives on their own terms—for increasingly long periods of time—we must strengthen the global evidence base, including generating high-quality data on cancer incidence, stage at presentation, and cancer relapse. As the authors of the Lancet Commission so aptly said:

> "With adequate resources and a shift in attitudes, it may be possible to cure some patients with MBC, treat most, alleviate the suffering of all, and abandon no one."[2] (p1897)

Cure some, treat most, alleviate the suffering of all, abandon no one

1.2 Key findings of this report

Findings reported here are informed by data from Te Rēhita Mate Ūtaetae – Breast Cancer Foundation National Register and by clinician/patient survey results (as indicated).

Māori and Pacific

- ABC survival for wāhine Māori and Pacific women were similar to that of European women diagnosed with ABC 2000-2020.
- Substantial gains across all survival outcomes were achieved for wāhine Māori, with median OS reaching 17 months (diagnosed 2000-2020). *I'm still here* reported a median overall survival (OS) of 12.8 months for wāhine Māori diagnosed 2000-2015.
- Five-year ABC survival for wāhine Māori diagnosed 2000-2020 was 15%, similar to that of European/other.
- Between 2000 and 2023, wāhine Māori and Pacific women accounted for 13% and 10% of all ABC diagnoses, respectively.
- Wāhine Māori and Pacific women with ABC are younger, with more aged below age 45 (17% and 15%, respectively), than aged 70 or older (7% and 5%, respectively).
- The median age at ABC diagnosis in 2021-2023 was 60 years for wāhine Māori and and 56 years for Pacific women.
- Wāhine Māori had a higher incidence of relapse at 10-years than European women in 2000-2009, but by 2010–2017 risk of relapse were comparable.
- Pacific women consistently experienced higher incidence of relapse than European women, and reductions over time did not fully close this gap.
- The proportions of wāhine Māori and Pacific women receiving 1 line, 2-3 lines or 4 or more lines of systemic therapy were similar to that of Asian and European women.

Survival

- For women diagnosed with ABC in 2016-2020, median OS is 21 months, a significant improvement from those diagnosed 2010-2015 (18 months).
- Five-year OS for diagnoses 2016-2020 was 21%.
- For the first time, we analysed 10-year survival (7.1% for diagnoses 2010-2015).
- Survival is typically longer for *de novo* ABC than recurrent ABC (median OS : 24 vs 15 months; 5 year survival: 23% vs 13%).
- There were no significant differences in ABC survival between Māori, Pacific and European women diagnosed with ABC 2000-2020; women of Asian ethnicity have significantly better survival than all other ethnicities.
- The triple negative subtype was associated with the poorest prognosis, with median OS of 6.7 months and 5-year survival of 3.8%.
- Women with HR−/HER2+ disease had median OS of 15 months and 5-year survival of 15%.
- Among women with HR+ tumours, survival patterns were similar. For HR+/HER2− disease, median OS was 23 months and 5-year survival was 20%; for HR+/HER2+ disease, median OS was 25 months and 5-year survival was 19%.
- Having only non-visceral metastases conferred a clear survival advantage.

HR: hormone receptor
HR+ positive or HR− negative
HER2: human epidermal growth factor receptor 2
HER2+ positive or HER2− negative

Who has ABC in New Zealand

- The ABC population is older at ABC diagnosis now than in previous years, with women aged 70+ comprising 40% of diagnoses in 2021-2023.
- The median age at ABC diagnosis in 2021-2023 was 65 years.
- Grade 3 early breast cancers (EBC) make up nearly half of ABC diagnoses.
- The proportion of ABC that is ER+ has grown over time, from 65% in 2005-2009 to 81% in 2021-2023, likely related to increasing maturity of Register data and late recurrences of ER+ EBC.
- Stage 1 EBC now forms a greater proportion of ABC diagnoses because of late relapses.
- The median metastasis-free interval (MFI) between diagnosis of EBC and ABC was 33 months, though this varied by subtype: HR+/HER2- was 39 months, HR+/HER2+ was 33 months, HR−/HER2+ was 25 months and triple negative was 21 months.

Finding ABC

- Of women we surveyed, 51% of women were diagnosed with ABC (either *de novo* or recurrent) after reporting a symptom to their GP or specialist.
- Surveillance for metastases after EBC is limited; there is a need for updated evidence to support practice change.
- This is the first report of near-national distant recurrence rates after EBC diagnosis. Cumulative incidence of distant recurrence differed between two ABC diagnosis cohorts — 2000–2009 and 2010–2017 — with women in the later cohort a third less likely to relapse than those in the earlier cohort.
- The 5- and 10-year overall risk of distant recurrence for women diagnosed 2000-2017 was 9.8% and 13%, respectively.
- Wāhine Māori had a higher incidence of relapse at 10-years than European women in 2000-2009, but by 2010–2017 risk of relapse were comparable.
- Pacific women consistently experienced higher incidence of relapse than European women, and reductions over time did not fully close this gap.
- Women aged under 45 at EBC diagnosis had higher risk of distant recurrence compared to women aged 45-69 (BreastScreen Aotearoa screening age).
- The 5-year risk of relapse for HR−/HER2+ patients halved from 2000-2009 to 2010-2017.
- There were no significant differences between two time cohorts (2000-2009 and 2010-2017) for the risk of distant recurrence for women with smaller (T1) or larger (T2) tumours when 4–9 lymph nodes (N2) were involved.
- More than 250 combinations of "first site/s of metastasis" are recorded in the Register, highlighting the variability of ABC. Bone was the most common site among women with HR+ ABC with single-site metastasis. HR− subtypes had more than one common single metastatic site: liver, lung, bone for HR−/HER2+ and lung, bone for triple negative.
- One-third of patients in our survey said their ABC diagnosis was poorly communicated by their clinical team.

Optimal Treatment

- Most clinicians in our survey indicated they find it easy to access metastatic biopsies in both the private and public sector.
- HER2 status discordance from EBC to ABC occurred more often as positive-to-negative (24%) than negative-to-positive (7.6%), highlighting the importance of repeat biopsies to identify opportunities to optimise treatment.
- Median lines of therapy was 2 (ABC diagnosed 2015-2022); this did not vary by ethnicity, age, region, or subtype.

- Five-year survival: 37% for ≥4 systemic therapy lines vs 23% for 2–3 lines (ABC diagnosed 2015-2022).
- Of the 1,861 women who received endocrine therapy for their ABC (2015-2022), approximately half received 1 line, and half had 2 or more lines, with no significant difference by ethnicity, age or region.
- Approximately 53% of women with HR+/HER2− disease and 36% with HR+/HER2+ disease received 2 or more lines of endocrine therapy.
- Patients receiving 2 or more lines of endocrine therapy had very good outcomes: median OS 48 months, 5-year survival 38% (ABC diagnosed 2015-2022).
- 71% of HR+/HER2- patients diagnosed from 2020 to 2022 and receiving at least 1 line of endocrine therapy were treated with palbociclib (CDK4/6 inhibitor).
- HR+/HER2- patients treated with palbociclib between January 2020 and December 2022 had a median OS of 42 months.

A lot of living

- Most clinicians in our survey recognised oligometastatic patients as being different from other ABC patients.
- The majority of clinicians in our survey discuss most *de novo* patients at multidisciplinary meeting (MDM). Most clinicians present fewer than a quarter of their recurrent patients at MDM.
- 82% of patients received systemic therapy for ABC; their median survival was 26 months.
- Patients who received systemic treatment were less likely to be older (70+), have visceral metastases and / or triple negative subtype, have recurrent ABC and/or shorter metastasis-free interval (MFI) (5-23 months).
- 60% of triple negative ABC patients received systemic therapy, as did 76% of HR−/HER2+ and 87-89% of HR+ patients (HR+/HER2+ and HR+/HER2-).
- 69% patients with ABC in our survey reported a good quality of life.
- ABC had a major financial impact: for patients in our survey, 75% of households were worse off, including 33% "a lot worse."
- Among patients in our survey, use of support services was high, with patient support organisation Sweet Louise and Facebook group Metavivors being used by most patients.

1.3 Call to action: next steps

The recently released ABC Global Decade Report (2015–2025) from the ABC Global Charter takes stock of progress in ABC care over the past 10 years and makes clear that, while gains have been made, significant challenges remain. In response, the Charter sets out 10 ambitious goals for the decade ahead. We welcome this global call to action and note that these goals closely align with the priorities identified in this report, reinforcing the urgency of coordinated, system-wide change.

In Aotearoa New Zealand, this report analyses robust national data derived from Te Rēhita Mate Ūtaetae – Breast Cancer Foundation National Register, which captures over 99% of patients diagnosed with breast cancer nationwide (with less than 1% opting out). The Register uniquely tracks both *de novo* and recurrent ABC with structured recurrence follow-up, providing comprehensive, high-quality data that underpins this analysis.

The 2018 *I'm still here* report presented five priority areas for improving ABC care in New Zealand. Table 1.1 summarises progress against these priorities, drawing on updated registry data, clinician and patient surveys, and changes in policy and practice since that time.

2018 Priority area	Progress since 2018	Key gaps remaining
Medical care	Development and adoption of NZ specific guidelines for ABC diagnosis and treatment, adapted from international models	Variation in systemic therapy use, clinical trial access, diagnostic pathways, and multidisciplinary review, with particular gaps in MDM for recurrent ABC
Symptom management	Research implementation of ABCpro – a nurse-led telehealth symptom monitoring service	Inconsistent integration of supportive and early palliative care, with ongoing barriers to effective symptom control including short clinic appointments and the cost of GP visits and prescriptions
Drugs	Funding of additional therapies and expanded indications	Delayed or restricted access to effective therapies compared with similar countries
Support	Community and NGO support for patients and whānau has grown through independent initiatives	Gaps in culturally appropriate care, inconsistent clinician communication support, and persistent inequities in practical access enablers including transport and parking
Investing in the future	Feasibility and research into ctDNA and genomic profiling for ABC underway	Need for investment in innovative surveillance approaches, trial participation, and use of emerging technologies

Table 1.1 Progress against the 2018 I'm still here priorities

1.3.1 Immediate priorities

Drawing on the findings of this report, and informed by the unmet challenges identified in *I'm still here*, we outline the following priorities for action to improve outcomes and quality of life for people living with ABC in Aotearoa New Zealand.

Detection and diagnosis

- **Standardise and modernise New Zealand's approach to post-EBC surveillance for metastatic disease**, recognising that current surveillance practices are inconsistent and contribute to variable and delayed detection of recurrence. This should include training and enabling primary care, allied health professionals, and non-cancer specialists to recognise patterns of breast cancer relapse—including late recurrence—and to act promptly through clearly defined referral pathways.
- **Implement consistent, nationwide "fast-track" diagnostic imaging and referral pathways** for anyone with a prior breast cancer diagnosis who presents with symptoms suggestive of metastasis, to reduce avoidable delays in diagnosis.
- **Ensure surveillance and early detection strategies are explicitly equity-focused**, prioritising populations shown in this report to have higher recurrence risk—including Pacific women and women diagnosed under the age of 45—and monitoring progress in closing gaps in outcomes over time.

Medical care

- **Make MDM the norm for all ABC**, particularly recurrent disease, by establishing clear performance expectations and redesigning workflows to ensure recurrent cases are routinely presented and reviewed.
- **Embed the use of the ABC-NZ guidelines into routine clinical practice** and actively close the "know versus use" gap, recognising that guideline-concordant care is associated with improved survival and supports consistent clinical decision-making.
- **Strengthen patient-centered communication, particularly at ABC diagnosis**, by supporting clinicians and providing system-level measures that enable timely, private discussions and access to resources for patients and whānau.

- **Investigate and address factors contributing to differences in distant recurrence risk across populations.** Particular attention should be paid to Pacific women, who experience persistently higher recurrence rates, and to wāhine Māori, to ensure improvements in their recurrence outcomes are sustained in the future. This includes a strengthened focus on access to post-EBC surveillance, follow-up care, and timely systemic therapy, to support equitable outcomes for all.

Symptom management

- **Embed routine, proactive symptom monitoring and escalation as core components of ABC care**, supported by longer appointments and scalable use of patient-reported outcomes and electronic symptom monitoring tools (e.g. ABCpro), to enable timely intervention, improve quality of life, and reduce crisis-driven care.

- **Integrate specialist palliative care early in ABC care** to provide additional expertise in complex symptom control and psychosocial support alongside oncology care.

Drugs

- **Reduce the proportion of people with untreated ABC**, including investigating why 18% of patients have no documented systemic therapy and acting on the report's identified risk groups — particularly older people (70+) and those with triple negative disease.

- **Ensure treatment decisions are not based on age alone** and re-evaluate thresholds for treatment versus non-treatment to support equitable access to systemic therapies where clinically appropriate.

- **Promote guideline-aligned therapy across metastatic treatment lines and reduce attrition by limiting system and access barriers**, ensuring patients can start and continue subsequent therapies that have proven survival benefit. This includes timely initiation of therapy, coordinated follow-up, access to funded treatments, and support for patients to tolerate ongoing therapy.

Support

- **Resource "whole-of-life" support as a core element of ABC care**, including routine psychosocial and supportive care from diagnosis, exercise as a priority supportive intervention, and practical supports to reduce financial burden, work disruption, and public–private inequities in access to medicines and care.

- **Enable and strengthen financial and workplace support mechanisms for people with ABC who need to take time off work for treatment and appointments**, including awareness of workplace rights and entitlements, flexible and accommodating work policies, and linkage to income support and practical cost assistance such as transport and childcare.

- **Expand and integrate patient peer support and community-based networks into routine ABC care pathways** by addressing current variability in how clinical teams connect patients with support, and standardising processes through formal links with patient organisations, staff training to facilitate referrals, and provision of clear, accessible information to patients and whānau.

- **Ensure culturally appropriate care pathways and support services** for wāhine Māori and Pacific women, including consideration of younger age at ABC diagnosis, to support engagement, adherence, and quality of life across the care continuum.

Investing in the future

- **NZ should invest in emerging technologies**, e.g. blood tests monitoring circulating tumour DNA (ctDNA) to complement clinical and radiologic follow-up and genomic testing to inform risk-adapted surveillance intensity.

These priorities align closely with international efforts to improve ABC care and emphasise the importance of equity, timely diagnosis, access to effective treatment, high-quality data, and quality of life for those living with ABC.

Progress in these areas will require sustained commitment across the health system. With strong national data and a clear understanding of where action is most needed, New Zealand is well positioned to continue moving in the right direction.

1.4 How to read this report

Using data from Te Rēhita Mate Ūtaetae – Breast Cancer Foundation National Register and survey results from clinicians and patients, this report provides an overview of the epidemiology, treatment patterns, and outcomes for our cohort of ABC patients in Aotearoa New Zealand. Section 1, *Introduction* explains who may benefit from reading this report, provides an overview of the datasets (methodology), and the limitations of the data. Section 1 also examines local and global developments that have happened since our previous ABC report, *I'm still here* (2018), to provide context for how the information in this report fits within the current landscape.

Key survival trends are outlined in Section 2, *Survival Outcomes*, to provide essential context for the chapters that follow. Section 3, *Who has ABC in New Zealand*, profiles the individuals captured in the Te Rēhita Mate Ūtaetae, highlighting demographic and clinical characteristics, to support interpretation of subsequent findings.

Section 4, *Finding ABC: Surveillance to Diagnosis*, reviews current evidence for what surveillance after EBC looks like now and a glimpse of what we should be considering for the future. Te Rēhita Mate Ūtaetae collects detailed recurrence data—a rarity internationally—which means we can identify where follow-up care may need improvement and then directly examine this using our real-world data. This gives us a powerful, evidence-based way to understand patient outcomes and strengthen the quality of breast cancer care. Section 4 also examines the point of ABC diagnosis for both *de novo* and recurrent disease, detailing metastatic patterns and presenting insights from patient experiences at this pivotal stage. Section 5, *Optimal Treatment for ABC*, reports survey data on metastatic biopsies and registry data on treatment patterns, including lines of systemic therapy and associated survival outcomes.

The report concludes by placing ABC in a broader context. Section 6, *Rethinking ABC: A Lot of Living*, follows the Lancet Commission's vision—*cure some, treat most, alleviate suffering for all, and abandon no one* —highlighting experiences within the New Zealand healthcare system, challenging conventional assumptions about care and looking ahead to what ABC care could and should look like in the future.

1.5 Methods

This report combines from three separate data sources:

1) **a comprehensive statistical analysis of ABC data** extracted from Te Rēhita Mate Ūtaetae – Breast Cancer Foundation National Register; from herein referred to as "the Register"), for 6,148 female patients diagnosed with metastatic breast cancer between 2000 and 2023, across four New Zealand "legacy" regions: Auckland, Waikato, Wellington and Christchurch[b]. Where possible data from 2020 is included from regions newly added to the Register. See Appendix Table A.1 for a list of DHBs in legacy regions and newly added regions.

[a] Te Rēhita Mate Ūtaetae operates under an opt-out consent process in compliance with HDEC ethics approval 2023 AM 5785, The Privacy Act 2020, the Health Information Privacy Code and the principles of Te Tiriti o Waitangi / Māori data sovereignty.

[b] Four regions have different inception dates: Auckland (1 June 2000), Waikato (1 June 2005, with retrospective data to 1991), Wellington (1 January 2010), and Christchurch (15 June 2009). In 2021, data from 11 additional regions were included (backdated to 1 January 2020) from Northland to Southland, so the Register now covers the entirety of New Zealand.

2) **a survey of people living with ABC**[3], conducted by Ipsos—this was primarily quantitative with some qualitative elements[c]; a total of 105 people with ABC completed a self-administered online survey (see Appendix A: Table A.2 for demographic information). As with *I'm still here*, survey invitations were shared to potential participants via Breast Cancer Foundation NZ, Sweet Louise, Breast Cancer Aotearoa Coalition and the Metavivors NZ closed group on Facebook.

3) **a survey of healthcare professionals treating ABC patients**[4], also conducted by Ipsos—also primarily quantitative with some qualitative elements[c]; a total of 21 of healthcare professionals—medical oncologists (n=13), radiation oncologists (6) and oncology nurses (2)—from around New Zealand completed a self-administered online survey (see Appendix A: Table A.3 for demographic information). Topics covered in survey questions included access to diagnostic technologies and treatment for their patients with ABC, and perceptions of improvement and challenges in the healthcare system.

Register data analysis and statistics

Diagnoses are reported for the periods 2000-2004, 2005-2009, 2010-2015, 2016-2020, and 2021-2023, based on the year of ABC diagnosis. Ethnicity data allowed up to three ethnicities per patient. Prioritisation was applied to classify individuals with multiple ethnicities in the following order: Māori, Pacific, Asian, and European/Other.

Survival is reported for the periods 2000-2004, 2005-2009, 2010-2015, 2016-2020 and includes survival data from regions whose data was relatively recently included in the Register and not yet sufficient for analysis in the report, *I'm still here,* in 2018. Survival was estimated using the Kaplan-Meier method. Comparisons of survival between subgroups used the Log-rank test ($p<0.05$ indicating statistical significance). Hazard ratios for all-cause mortality were estimated using Cox Proportional Hazards Models.

We also analysed risk of relapse out to 10 years for 21,871 women diagnosed with stage 1-3 EBC 2000-2017 and compared risk of relapse for two cohorts—2000-2009 and 2010-2017—pre and post public funding of adjuvant anti-HER2 therapy. Risk is calculated to 10 years from EBC diagnosis. The incidence of distant recurrence was estimated using the cumulative incidence function for patients initially diagnosed with stage 1-3 invasive breast cancer. A comparison of the cumulative incidence of different subgroups was performed using Gray's test. To ensure confidentiality, counts where the number of people was less than six have been suppressed in this report, consistent with privacy standards.

Anatomic TNM staging was derived using individual T (tumour), N (node), and M (metastasis) data points, based on the American Joint Committee on Cancer (AJCC) 8th edition criteria. Analyses by receptor status exclude women with unknown HER2 status at both early and metastatic diagnosis, as it is not possible to accurately define subtype without this.

In most cases, we report treatment for the period 2015-2022. Treatment prior to 2015 was well-reported in *I'm still here*, which can be viewed online at https://www.breastcancerfoundation.org.nz/images/assets/21893/1/bcfnz-abc-report-2018.pdf.

Lines of systemic treatment for women diagnosed with ABC were determined from treatment records in the Register (January 2015—January 2025), including an audit against Health NZ Pharmaceutical Collection (PHARMS) database (January 2020—December 2023). In defining lines of systemic therapy, we followed assumptions aligned with Rajkumar et al. (2015)[5] and Hess et al. (2021)[6]. If a treatment regimen was stopped for any reason and a new one was started, this marked the beginning of a new line of therapy. Changes in treatment might occur due to planned completion, side effects, disease progression, lack of effectiveness, or insufficient response. A regimen was considered discontinued only when all of its drugs had been stopped. If only some drugs were stopped, the regimen was not deemed discontinued.

[c] The survey included both closed and open-ended questions. Open-ended answers were used where it was difficult to anticipate all possible responses – answers to these were subsequently grouped into categories representing common response types. Some qualitative comments have been quoted verbatim in this report to complement the quantitative findings, but the study is primarily quantitative in design.

If a discontinued regimen was resumed later, it was only counted as a new line if one or more different regimens were used in between. Restarting the same regimen, regardless of dose changes, without any other treatment in the interim, did not constitute a new line of therapy. Also, adding new drugs within 28 days of starting a regimen, while the original treatment continued, did not signify a new line. Treatments using only GnRH agonists, denosumab, bevacizumab, or zoledronic acid were not considered new lines of therapy.

1.6 Limitations

This report is subject to some limitations:

People with ABC were recruited into the survey study through cancer support groups, as this was the most effective way to reach this audience. Their involvement with support groups may mean they are more informed and engaged than those not accessing this support. In addition, as the study required internet access, it is possible that participation from people unable to access the internet was limited.

Clinicians were recruited into the survey via email. The sample size of clinicians is relatively small and cannot be claimed to represent the views of all healthcare professionals working with ABC patients. However, there is representation from the disciplines most involved in ABC care—medical and radiation oncologists, and oncology nurses—working both privately and publicly from across the motu (country).

Metastatic diagnoses before the inception date of the Register in each region are not included in the Register. Accurate documentation of breast cancer recurrence is often limited. This underreporting can lead to an underestimation of recurrence rates. Specifically, patients lost to follow-up who experienced a recurrence that was not recorded may be incorrectly classified as recurrence-free (censored), thereby introducing bias into survival and incidence analyses. Globally, there is a lack of comprehensive data on the number of individuals living with metastatic breast cancer at any given time[7]. This knowledge gap significantly impedes our ability to estimate the true cumulative incidence of distant recurrence and to evaluate trends in recurrence rates accurately. As a result, the cumulative incidence of distant recurrence reported here is likely to be underestimated.

Anatomic TNM stages were derived from the individual T (tumour), N (node), and M (metastasis) components. Where available, anatomical T, N, and M staging values were derived from pathology reports; otherwise, clinical assessments were used. In instances where the M stage was missing, it was imputed as M0 unless metastatic disease was diagnosed within four months of the initial cancer diagnosis. While these imputation strategies were necessary to enable analysis, they might over- or under-estimate the staging and should be taken into account when interpreting the results.

Systemic therapy records were drawn from the Register (January 2015—January 2025), which includes an audit of dispensing data against PHARMS database (January 2020—December 2023). Limited access by the Register to pre-2020 PHARMS data means some early treatments may be underrepresented. Patients diagnosed before 2020 may have inaccurate or missing first-line therapy records. The absence of systemic therapy data should be interpreted cautiously, as it may reflect missing information rather than an actual lack of treatment. The terms "no lines of therapy", "no systemic therapy", or "not received systemic therapy" used in this report indicate that no records of systemic treatment were recorded in the Register database during 2015-2025.

Subtype classifications in this report were determined using all available data, without consideration of the timing of assessment. Many patients do not have receptor status reported at metastatic biopsy. A minority of patients have metastatic HER2 status recorded; ER/PR status derived from metastatic biopsy is poorly recorded and did not provide usable data. While it is acknowledged that receptor status may evolve over the course of the disease, this report presents subtype classifications based on the full dataset, regardless of when the data were collected. As a result, it does not reflect receptor status specifically at the time of metastatic progression.

Finally, the presence of missing stop dates for some systemic therapies in the database restricts the accurate identification of treatment discontinuations. Without complete stop date information, it is often unclear

whether a regimen was truly discontinued, ongoing, or was simply modified. To address this ambiguity, we adopted a conservative approach: in cases where stop dates were missing for a regimen, we assumed that the addition of new agents within 28 days of initiating a treatment regimen did not constitute the start of a new line of therapy. While this assumption aligns with common clinical definitions and preserves consistency in line of therapy classification, it may lead to an underestimation of the true number of treatment lines.

1.7 Changes—or not—since *I'm still here*

1.7.1 Changes in the global ABC context

The ABC Global Alliance recently published reflections from the 2015–2025 Global Decade[8]. Advances in treatment have extended survival for many people living with ABC, while greater recognition of quality of life, equity of access, and patient-centred care has reshaped expectations of what meaningful progress looks like. Yet, persistent disparities in access, outcomes, and system capacity continue to define the lived reality of ABC worldwide. Limitations in data collection, fragmented care pathways, and insufficient integration of supportive and palliative care continue to constrain progress. Against this backdrop, the ABC Global Alliance Charter (2025–2035)[8] reflects a shift from awareness-raising to accountability—building on lessons learned to address unmet needs and to drive coordinated action across health systems, policy, and society.

Access to new medicines

The international treatment landscape for ABC has changed significantly since 2018, across all subtypes of the disease. Simulated models estimate that treatments for ABC have accounted for 29% of the decline in mortality from 1975 to 2019[9].

During the period under review in this report, Level 1 evidence has led to widespread use of CDK4/6 inhibitors for hormone receptor-positive (HR+)—i.e., tumours that are estrogen receptor-positive (ER+) and/or progesterone receptor-positive (PR+)—ABC since 2018[10], resulting in extended median survival for these patients[11]. In 2021, the FDA and EMA approved pembrolizumab (Keytruda, Trodelvy for sacituzumab govitecan and Enhertu for T-DXd) for first-line treatment of advanced triple negative breast cancer; this has been the standard of care for PD-L1-positive patients since then, according to international guidelines[12]. More recently, sacituzumab govitecan has also been approved in advanced triple negative breast cancer. In HER2-positive (HER2+) ABC, impressive results of clinical trials for trastuzumab deruxtecan (T-DXd) led to countries like the UK funding it as early as 2021[13], before it was acknowledged as the new standard of care in 2023[14].

The addition of these latest targeted treatments and others that are now becoming standard of care in existing subtypes, plus the recent classification of targetable HER2-low and HER2-ultralow ABC, seem likely to increase the role that targeted therapies will play in extending lives and, in some cases, maybe even in curing ABC.

Improvements in survival

Real-world studies of ABC survival have demonstrated similar outcomes to clinical trials of new drugs, cementing survival gains in HER2+ and ER+/HER2− ABC, representing about 85% of all diagnoses. Real-world median survival in both these subtypes is around 3-5 years[15-17].

Long-term or exceptional responders

With the survival gains resulting from recent advances in systemic therapy, there has been increased focus on understanding the tumour, treatment and other characteristics of long-term or "exceptional" responders to ABC systemic therapy.

Retrospective studies have investigated exceptional responders across all ABC subtypes[18,19], and a USA prospective study in HER2+ ABC will report results late in 2026[20].

The Lancet Commission's expectation that we will "cure some" lends further weight to these investigations.

PROMs to improve quality of life

The extended survival some patients experience with these new drugs has led to new considerations internationally about what kind of life people living with ABC can expect to lead, and with what quality of life. Many of these newer drugs are less toxic than chemotherapy, while for others, monitoring and treatment of toxicities to maintain quality of life, as well as continuation of therapy, has made extended "normal life" possible for many patients.

Nevertheless, ABC remains a disease with a high symptom burden, which impacts on health system resources as well as patient quality of life. Patient-reported outcome measures (PROMs), once used mainly in the context of patient monitoring in clinical trials, have been recognised for their potential to support a high quality of life with efficient use of resources. PROMs are now being extended, albeit somewhat slowly, into routine clinical care. The seminal work in this area by Basch et al., reported that patients with ABC who communicated symptoms electronically to a nurse had fewer hospital admissions, better quality of life and longer median survival than those receiving usual care[21, 22].

More recently, the large-scale German PRO B study found significant reductions in fatigue (which has the greatest impact on quality of life[23]), and improvements in survival for ABC patients reporting symptoms electronically[24].

Integration of PROMs in routine clinical care is now recommended in ABC treatment guidelines[25].

Physical exercise

While the benefits of physical exercise in EBC have been widely reported, less is known about exercise in ABC, and clinicians may take a cautious approach to recommendations, particularly in the case of patients with bone metastases. However, with increased duration of survival and the well-documented positive impact of exercise on quality of life, it has become more important to understand what exercise patients can safely participate in. The 2024 PREFERABLE-EFFECT study provided valuable insight into these questions, showing that exercise can improve quality of life and physical functioning in ABC without adverse effects attributable to exercise[26].

PREFERABLE-EFFECT is likely to give confidence to clinicians and patients, and result in physical exercise becoming an area of increasingly high priority in support for ABC patients.

The Lancet Breast Cancer Commission, 2024

Theme 3 of *The Lancet Breast Cancer Commission* report, released in April 2024, is **optimal inclusive management of metastatic breast cancer**, recognising the burden that breast cancer mortality places on wider society, as well as on patients and their families. Failure to treat ABC or manage its effects has economic and productivity costs for workplaces and society, the Commission argued.

The Commission called for a shift in the attitudes of policy-makers and the public to support people with ABC to continue as contributing members of society, whether in paid or unpaid work, caring roles, or by contributing to cultural life. This would be made possible by equitable access to personalised treatment, delivered with an "honest but positive approach" that informs patients that while their disease is "usually incurable", it can often be managed for many years.

Multidisciplinary care based on clinical guidelines adapted to local resources should be the norm in ABC care, as it is in EBC, the Commission argued. True multidisciplinary management will improve access to clinical trials, locoregional therapies (surgery and radiotherapy), psychosocial support, and early involvement of palliative care. All of these can help improve quality of life and extend survival in ABC. The Commission emphasised that good communication is vital to patients understanding their treatment, and clinicians understanding their patients' values and goals around longevity, comfort, and independence.

The availability of data pertaining to ABC, particularly to recurrent ABC, was highlighted as a significant issue by the Commission. We were gratified that the Commission identified *I'm still here* and the Register as an exemplar in the reporting and use of ABC data. Te Rēhita Mate Ūtaetae is one of very few national registers that captures comprehensive data about metastatic recurrence after EBC, along with details of *de novo* ABC, enabling more accurate reporting of ABC diagnosis, treatment and outcomes.

1.7.2 Changes in the New Zealand ABC context

I'm still here identified five areas of focus for change in ABC: attitudes and access to medical care, symptom management, access to new drugs, support for patients, and investing in the future. Here we review what has changed since 2018.

Newly funded medications in New Zealand

In the current era of targeted therapies for advanced breast cancer, people with ABC in New Zealand have had fewer medication options available to them than those living in comparable countries. Recent funding decisions by New Zealand's Pharmaceutical Management Agency, Pharmac, have increased the number of life-prolonging drugs, many with lower toxicities that enable a high quality of life, available to New Zealanders with ABC. Over the past 7 years since the publication of *I'm still here*, six (mostly new) medicines have been funded for ABC, including our first targeted treatment for triple negative ABC (Table 1.2).

Drug	Date Pharmac funded	Funding criteria
trastuzumab emtansine (T-DM1)	December 2019[27]	HER2+ ABC
fulvestrant	April 2020[28]	HR+/HER2- ABC, second or later line
palbociclib	April 2020[29]	HR+/HER2- ABC, first or later line
ribociclib	July 2024[30]	HR+/HER2- ABC, first or later line
pembrolizumab	October 2024[31]	Triple negative ABC, first-line, PD-L1 positive
trastuzumab deruxtecan (T-DXd)	January 2025[32]	HER2+ ABC

Table 1.2 Pharmac-funded medicines for ABC from September 2018 to September 2025

The public funding of these new medicines has been a major step forward in the treatment options that clinicians can offer their patients, as several commented in our survey:

> ***The funding of palbociclib has had a massive positive impact on how we treat patients with HR+ disease, significantly delaying the time to chemotherapy.***
> *- Medical oncologist*

> ***Approval of palbociclib and fulvestrant has been the biggest change.***
> *- Medical oncologist*

> ***Better access to drugs such as Kadcyla, pertuzumab, palbociclib, fulvestrant [has positively influenced how we treat patients].***
> *- Medical oncologist*

These medicines were also mentioned by clinicians anecdotally as being associated with improvements in quality of life (see *section 6.3*). While it is too soon to attribute significant improvements in survival to some of these funding decisions, it is likely the decision to fund trastuzumab emtansine (T-DM1; Kadcyla) in 2019 has had a favourable impact on median overall survival for HR−/HER2+ ABC patients (see *section 2.4*).

ABC-NZ guidelines

One of the recommendations of *I'm still here* was that New Zealand should have its own treatment guidelines for ABC, adapted from international guidelines. In 2019, several New Zealand clinicians attended ABC5, the international conference that sets consensus guidelines for the treatment of advanced breast cancer, held in Lisbon. This was the first time, we believe, that New Zealand clinicians had attended.

Subsequently, the New Zealand Breast Special Interest Group (SIG) of breast cancer specialists agreed that New Zealand should develop local guidelines based on the ABC5 global guidelines, allowing for the integration of international best practice with New Zealand's healthcare infrastructure and resources in NZ[33].

Breast Cancer Foundation NZ provided logistical support and a forum (the first Breast Cancer inSIGhts conference) for a panel of expert clinicians and patient advocates to review and vote on the first ABC-NZ guidelines in late 2020. The process was documented in The Breast journal[26], with the guidelines re-voted 2-yearly since then. Dr Marion Kuper, Chair of Breast SIG and of the ABC-NZ guidelines, is now a member of the international consensus voting panel that meets 2-yearly in Lisbon.

In addition to providing guidance for treatment with the publicly available drugs, the ABC-NZ guidelines advise on use of the unfunded medications that may be used in private care. The guidelines help maintain visibility of the gap between funded medications and the international standard of care, and can assist with prioritisation of new approvals.

In our survey of clinicians, 20 of the 21 clinicians responding were aware of the guidelines, and three-quarters of those said they refer to them.

> ***[They] reinforced treatment decisions.***
> *- Medical oncologist*

> ***I think through involvement in these I was more aware of benefits of carboplatin for TNMBC, and have used more often in this setting.***
> *- Medical oncologist*

> ***I often use ESMO guidelines, but local guidelines will become increasingly relevant.***
> *- Medical oncologist*

Greater adherence to clinical breast cancer guidelines is associated with superior survival for patients with breast cancer[34].

PROMs to improve quality of life: ABCpro

Following *I'm still here*, Breast Cancer Foundation NZ undertook to develop an economical, clinic-ready PROMs tool to improve symptom management and quality of life for people with ABC. ABCpro integrates two standard software tools to provide customised electronic symptom surveys with guideline-based clinical decision support. Patients are invited to report symptoms regularly; when symptoms meet specified severity, frequency or change thresholds, an alert is sent to an ABC Clinical Nurse Specialist to guide actions and interventions.

ABCpro has been piloted at Waikato Hospital, Icon Cancer Care in Wellington, and Mater Hospital in Sydney, with results evaluated in a pre-post cohort study. Patients showed significant gains in health-related quality of life functional domains, and a reduction in symptoms, fatigue in particular. They reported increased confidence in managing symptoms and reduced anxiety when attending the hospital.

The use of a low-cost, scalable PROMs tool like ABCpro should be integral to cost-effective support for a longer-living ABC population.

2. Survival Outcomes

In 2018, *I'm still here* highlighted the shorter duration of ABC survival experienced in New Zealand versus several comparable countries[1], with median overall survival (OS) for diagnoses 2000-2015 of 16 months, and 18.8 months for those diagnosed 2010-2015. Data from only two regions, Auckland and Waikato, was used in survival reporting in *I'm still here*, as data from other regions was not sufficiently mature.

Survival reporting in this report includes data from Wellington and Christchurch, as well as Auckland and Waikato, allowing a more complete picture of ABC outcomes in Aotearoa New Zealand. In this section, we cover survival for all ABC patients, and survival by recurrent or *de novo* diagnosis. Later sections of the report analyse survival by characteristics of the primary breast cancer, ABC treatment, and other factors. Hazard ratios for all-cause mortality are presented in Appendix A: Table A.6.

2.1 Median overall survival

Median overall survival for ABC diagnosed 2000-2020 (21 year period) was 17 months (Table 2.1); however, for those diagnosed 2016-2020 (most recent 5 years of the analysis), the median was 21 months, a significant improvement from those diagnosed 2010-2015 (previous 5 years) and with potential to improve further.

	All ABC		***de novo* ABC**		**Recurrent ABC**	
Year of ABC diagnosis (all regions)	N	Median OS, months (95% CI)	N	Median OS, months (95% CI)	N	Median OS, months (95% CI)
2000-2020	**4644**	**17 (17, 18)**	**1535**	**24 (22, 26)**	**3109**	**15 (14, 16)**
2000-2004	393	9.5 (7.7, 12)	167	19 (12, 25)	226	6.6 (5.7, 8.0)
2005-2009	881	15 (13, 17)	277	24 (20, 28)	604	12 (9.9, 14)
2010-2015	1611	18 (16, 19)	512	24 (20, 28)	1099	15 (14, 17)
2016-2020	1759	21 (19, 23)	579	26 (23, 31)	1180	18 (17, 21)

Table 2.1 Median overall survival (OS) by year; all regions (2000-2020)

We also present median survival data for Auckland and Waikato only (Table 2.2). This table focuses on the two regions with complete coverage for the full 2000-2020 period. The survival trends observed for Auckland and Waikato are consistent with those reported for all regions (Table 2.1).

	All ABC		***de novo* ABC**		**Recurrent ABC**	
Year of ABC diagnosis (Auckland & Waikato only)	N	Median OS, months (95% CI)	N	Median OS, months (95% CI)	N	Median OS, months (95% CI)
2000-2020	**3578**	**17 (16, 18)**	**1090**	**23 (21, 26)**	**2488**	**15 (14, 16)**
2000-2004	393	9.5 (7.7, 12)	167	19 (12, 25)	226	6.6 (5.7, 8.0)
2005-2009	873	15 (13, 17)	269	23 (20, 27)	604	12 (9.9, 14)
2010-2015	1202	18 (17, 20)	330	24 (19, 28)	872	17 (16, 19)
2016-2020	1110	22 (20, 24)	324	27 (21, 33)	786	21 (18, 23)

Table 2.2 Median overall survival (OS) by year; Auckland and Waikato only (2000-2020)

***De novo* ABC** is cancer that has already spread beyond the breast area and axillary (armpit) lymph nodes when first diagnosed or within four months of diagnosis, while **recurrent ABC** is when a previous diagnosis of early breast cancer (EBC) recurs elsewhere in the body more than four months after the initial diagnosis.

Survival outcomes for *de novo* and recurrent ABC are discussed in *section 2.2.1.*

Survival by ethnicity and receptor status are discussed in *sections 2.3* and *2.4*, respectively.

2.2 Duration of overall survival

Overall survival for ABC has improved over time (Figure 2.1). The difference in survival for women diagnosed 2016-2020 compared with 2010-2015 was statistically significant (Table 2.3).

Approximately one in five patients survived 5 years after a diagnosis of ABC, a number we expect to improve in future, with continuing improvements in patient management.

For the first time, we report on 10-year survival of ABC. For those diagnosed 2010-2015, 10-year overall survival was 7.1% (Table 2.3). This provides a baseline for future improvement.

Several factors discussed in this report are relevant to such improvements, including presentation of patients at the multidisciplinary meeting (MDM) leading to better multidisciplinary care, therapeutic advances, and the combination of PROMs and specialist nurse support to help patients remain on treatment. Notably, survival improvements appear to coincide with public funding of new drugs that have become standard or care for ABC. More information about these drugs can be found in *section 5, Optimal Treatment for ABC*.

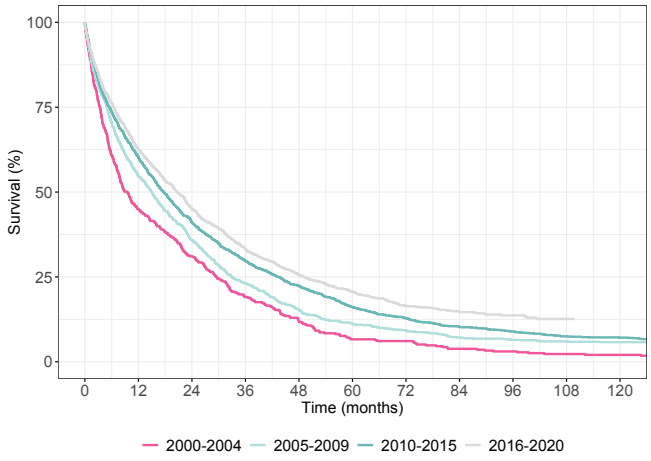

Figure 2.1 Overall survival by year of ABC diagnosis (2000-2020)

Year of ABC diagnosis (all patients)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)	10 years (95% CI)
2000-2020 (n = 4,644)	**59% (57, 60)**	**41% (39, 42)**	**16% (15, 17)**	**— (—, —)**
2000-2004 (n = 393)	45% (40, 50)	31% (27, 36)	6.6% (4.6, 9.6)	2.0% (1.0, 4.0)
2005-2009 (n = 881)	55% (52, 58)	36% (33, 39)	11% (9.3, 14)	5.8% (4.4, 7.6)
2010-2015 (n = 1,611)	60% (58, 63)	41% (39, 44)	16% (14, 18)	7.1% (6.0, 8.5)
2016-2020 (n = 1,759)	63% (60, 65)	45% (43, 48)	21% (19, 23)	— (—, —)

Table 2.3 Overall survival by year of ABC diagnosis (2000-2020)

Although metastatic detection practices are difficult to measure directly, surveillance is likely to have remained consistent over time, making lead-time bias an improbable explanation for the observed survival improvement.

Lead-time bias occurs when a disease is detected earlier, so survival measured from diagnosis appears longer even though the natural course of the illness is unchanged. The apparent improvement reflects an earlier start to the survival clock, not a true extension of life.

2.2.1 Duration of survival, *de novo* and recurrent ABC

Survival is typically longer for *de novo* ABC than recurrent ABC (Figure 2.2 and Figure 2.3; Table 2.4 and Table 2.5), in part because these patients include some with less aggressive cancers that respond well to treatment, whereas most recurrent ABC patients had prior treatment that eventually failed, allowing cancer to come back. Further, most patients have their best response to their first drug treatment; since *de novo* patients have not had prior treatment (they are "treatment naïve"), they can have a better response to their first ABC treatment.

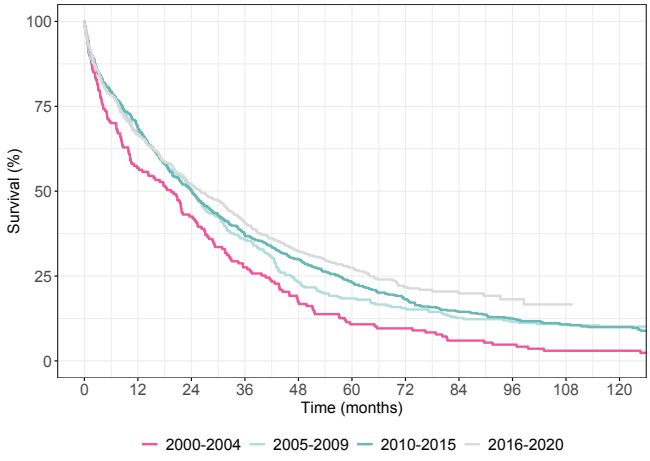

Figure 2.2 Overall survival for de novo patients by year (2000-2020)

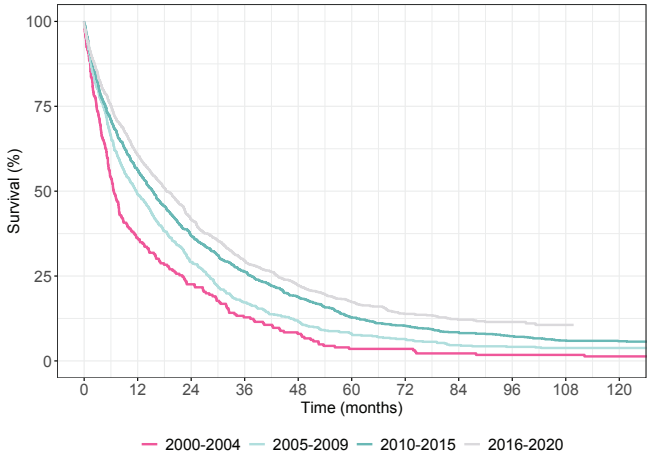

Figure 2.3 Overall survival for recurrent patients by year (2000-2020)

Year of ABC diagnosis (*de novo*)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)	10 years (95% CI)
2000-2020 (n = 1,535)	**66% (64, 69)**	**50% (48, 53)**	**23% (21, 25)**	**— (—, —)**
2000-2004 (n = 167)	57% (50, 65)	43% (36, 51)	11% (7.0, 17)	3.0% (1.3, 7.1)
2005-2009 (n = 277)	67% (62, 73)	51% (45, 57)	18% (14, 24)	10% (7.1, 14)
2010-2015 (n = 512)	69% (65, 73)	50% (46, 55)	23% (20, 27)	9.9% (7.7, 13)
2016-2020 (n = 579)	67% (63, 71)	52% (48, 56)	27% (24, 31)	— (—, —)

Table 2.4 Overall survival for de novo patients by year (2000-2020)

Year of ABC diagnosis (recurrent)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)	10 years (95% CI)
2000-2020 (n = 3,109)	**55% (53, 57)**	**36% (35, 38)**	**13% (12, 14)**	**— (—, —)**
2000-2004 (n = 226)	36% (31, 43)	23% (18, 29)	3.5% (1.8, 7.0)	1.3% (0.4, 4.1)
2005-2009 (n = 604)	49% (45, 53)	29% (26, 33)	7.9% (6.1, 10)	3.8% (2.6, 5.7)
2010-2015 (n = 1,099)	56% (53, 59)	37% (34, 40)	13% (11, 15)	5.8% (4.6, 7.4)
2016-2020 (n = 1,180)	61% (58, 63)	42% (39, 45)	17% (15, 20)	— (—, —)

Table 2.5 Overall survival for recurrent patients by year (2000-2020)

For women with *de novo* ABC or recurrent ABC, 5-year survival was 23% and 13%, respectively (diagnosed between 2000 and 2020); and 10-year survival was 9.9% and 5.8%, respectively (diagnosed between 2010 and 2015; Table 2.4, Table 2.5). For *de novo* ABC, there were no statistically significant changes in OS between 2010–2015 and 2016–2020; however, significant improvements were seen across earlier intervals, with 5-year OS increasing from 11% in 2000–2004 to 18% in 2005–2009 and reaching 27% in 2016–2020. For recurrent ABC, there has been consistent, significant improvement in survival across all time periods since 2000–2004. Five-year OS increased from 3.5% in 2000–2004 to 7.9% in 2005–2009, and further to 17% in 2016–2020. In New Zealand, there was a sharp increase in approvals of chemotherapy drugs in 2001 (the 'oncology basket') after a decade of little change, driven by the establishment of the current Pharmac approval system[35]. Since then, few new chemotherapy agents have been introduced.

2.3 Survival by ethnicity

It is reassuring that there were no differences in ABC survival between Māori, Pacific and European women (Figure 2.4, Table 2.6).

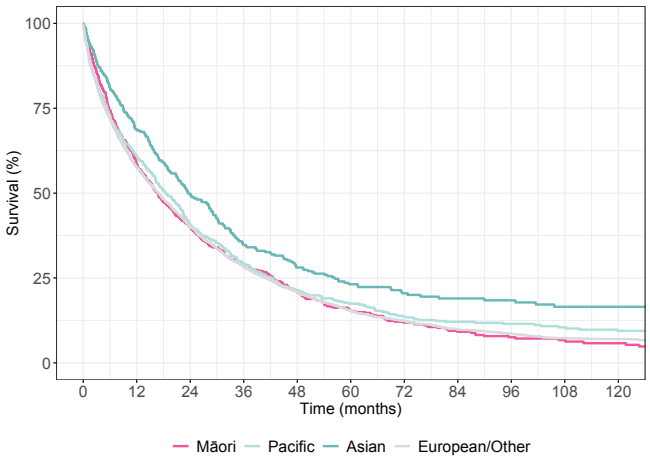

Figure 2.4 Overall survival by ethnicity (2000-2020)

	Median OS, months (95% CI)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)
All ethnicities (n = 4,644)	**17 (17, 18)**	**59% (57, 60)**	**41% (39, 42)**	**16% (15, 17)**
Māori (n = 553)	17 (14, 19)	58% (54, 63)	40% (36, 44)	15% (13, 19)
Pacific (n = 478)	19 (16, 22)	61% (57, 65)	41% (37, 45)	17% (14, 21)
Asian (n = 285)	23 (21, 29)	69% (64, 74)	50% (44, 56)	23% (19, 29)
European / Other (n = 3,328)	17 (16, 18)	58% (56, 59)	40% (38, 42)	15% (14, 17)

Table 2.6 Overall survival (OS) by ethnicity (2000-2020)

For women diagnosed 2000-2020, median OS for wāhine Māori was 17 months, matching that of European women. Five-year ABC survival for wāhine Māori was 15%, also matching that of European women. This is encouraging since, as reported in *I'm still here*, wāhine Māori had median OS of 12.8 months and 5-year survival was only 5% (2000-2015) – both survival outcomes were lower than that of European women.

As reported in *I'm still here*, survival for Pacific women is similar to that of European women. Pacific women with ABC were more likely to have HER2+ disease compared with European women (see *section 3.2.1* and *Appendix A: Table A.4*). Recent access to more HER2-targeted treatments may have provided benefit to Pacific women.

HER2+ ABC can be either hormone receptor (HR) positive, or HR-negative.

Women of Asian ethnicity have significantly better survival than all other ethnicities, which has been shown in a number of other studies[36,37]. Although various explanations—such as differences in comorbidities, or adherence to endocrine treatment[36]—have been proposed, additional research is needed to investigate key factors contributing to better survival outcomes.

2.4 Survival by receptor status

Women with HR+/HER2− or HR+/HER2+ ABC had more favourable survival outcomes than those with HR−/HER2+ or triple negative disease (Figure 2.5, Table 2.7). The triple negative subtype was associated with the poorest prognosis, with median OS of 6.7 months and 5-year survival of 3.8%. Women with HR+ tumours had similar survival patterns: median OS and 5-year survival rates were 23 months and 20% for HR+/HER2− disease, and 25 months and 19% for HR+/HER2+ disease.

Notably, median OS and 5-year survival for HR−/HER2+ disease was 15 months and 15%. *I'm still here* reported that the 5-year survival rate for HER2-enriched (HR−/HER2+) women diagnosed during 2000-2015 was 7%. Improvements in survival for HR−/HER2+ ABC patients are likely due to the public funding of pertuzumab in 2017[35] and trastuzumab emtansine (T-DM1) in December 2019[24].

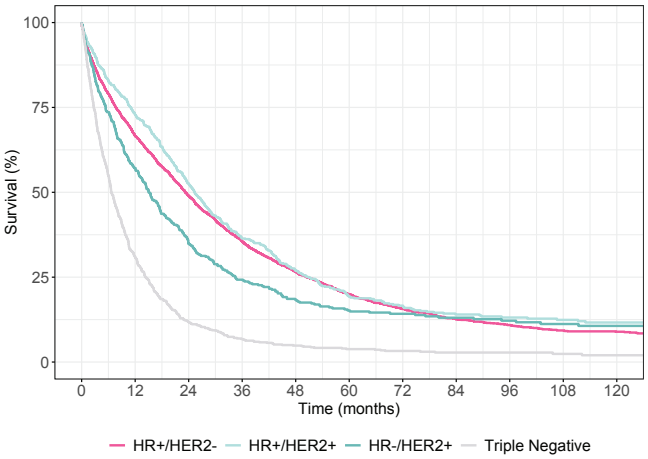

Figure 2.5 Overall survival by receptor subtype (2000-2020)

Receptor status	Median OS, months (95% CI)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)
All (n = 3,931)	**19 (18, 20)**	**61% (59, 63)**	**42% (41, 44)**	**17% (16, 18)**
HR+/HER2- (n = 2,349)	23 (22, 25)	67% (65, 69)	49% (47, 51)	20% (18, 22)
HR+/HER2+ (n = 591)	25 (23, 28)	73% (69, 76)	53% (49, 57)	19% (16, 23)
HR-/HER2+ (n = 371)	15 (13, 18)	57% (52, 62)	35% (30, 40)	15% (12, 19)
Triple Negative (n = 620)	6.7 (6.2, 7.7)	31% (27, 35)	12% (9.5, 15)	3.8% (2.6, 5.7)

Table 2.7 Overall survival (OS) by receptor subtype (2000-2020)

2.5 Survival by type of first metastatic site

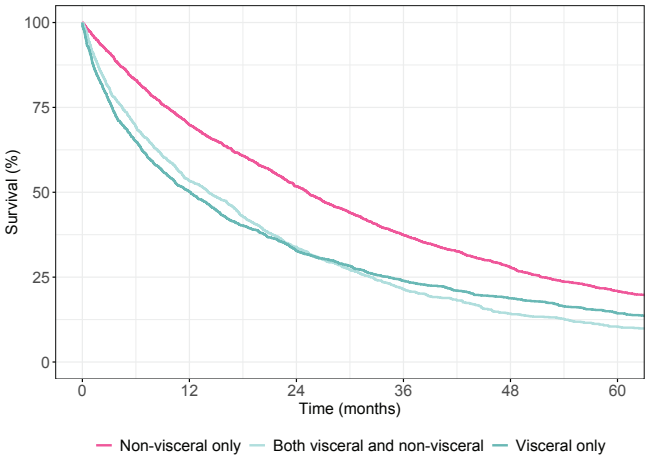

Figure 2.6 Overall survival by first metastatic sites (2000-2020)

	Median OS, months (95% CI)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)
All (n = 4554)	**18 (17, 19)**	**59% (58, 61)**	**41% (40, 43)**	**16% (15, 17)**
Non-visceral only (n = 1,944)	25 (24, 27)	70% (68, 72)	52% (50, 54)	21% (19, 23)
Both visceral and non-visceral (n = 1,087)	14 (12, 16)	53% (50, 56)	34% (31, 37)	10% (8.8, 12)
Visceral only (n = 1,523)	12 (11, 14)	50% (48, 53)	33% (30, 35)	14% (13, 16)

Table 2.8 Overall survival (OS) by first metastatic sites (2000-2020)

Among all patients, having only non-visceral metastases conferred a clear survival advantage compared with visceral metastases, whether alone or combined with non-visceral metastases (Table 2.8, Figure 2.6). Patterns of survival associated with visceral and non-visceral metastases varied across receptor subtypes (Figure 2.7). In HR+ subtypes, a survival advantage was seen in patients with non-visceral-only metastases over those with both visceral and non-visceral metastases. Also, survival for those with visceral only was significantly greater than those with both visceral and non-visceral metastases.

In contrast, for those with HR−/HER2+ and triple negative ABC, there were no significant differences in survival between visceral only metastases and both visceral and non-visceral metastases (Figure 2.7). Although these subtypes carry a higher risk of developing visceral metastases[38], interpreting the impact of additional non-visceral metastases is challenging due to tumour heterogeneity—including differences in comorbidities, metastatic burden, and treatment—all of which can independently influence survival[39].

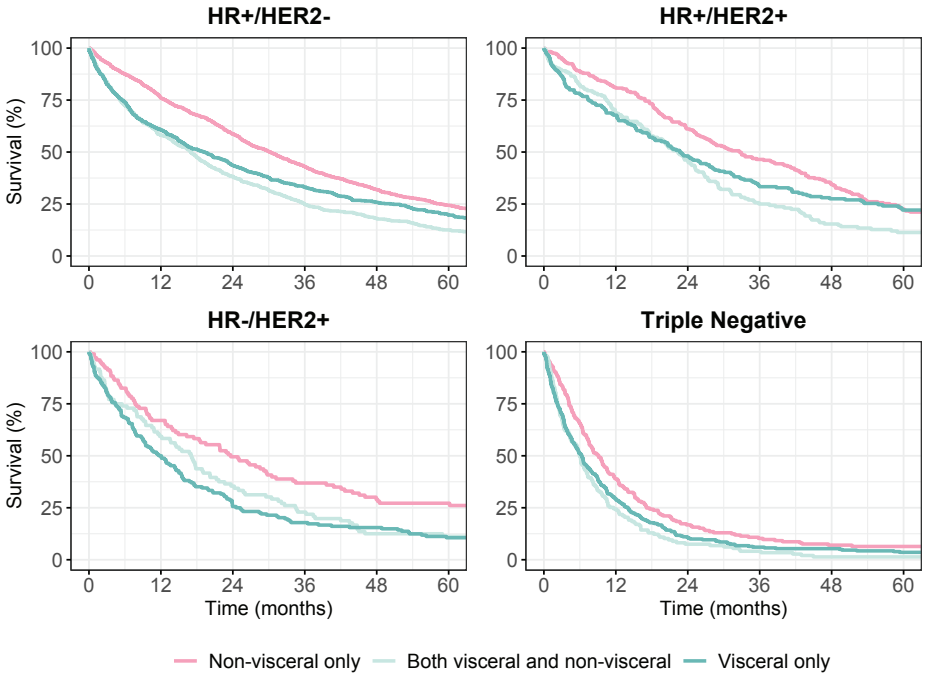

Figure 2.7 Overall survival by first metastatic sites and receptor status (2000-2020)

Broadly speaking, ABC survival in New Zealand is lower than reported in many high-income countries (including Australia[40], USA[41], Canada[42], France[43], Italy[44], Germany[45], and Sweden[46]), which remains unchanged since *I'm still here*; however, direct comparisons are challenging due to differences in diagnostic periods, age distributions, treatment practices, and data collection methods.

In summary

- For women diagnosed with ABC in 2016-2020, median OS is 21 months, a significant improvement from those diagnosed 2010-2015 (18 months).
- Five-year OS for diagnoses 2016-2020 was 21%.
- For the first time, we analysed 10-year survival (7.1% for diagnoses 2010-2015).
- Survival is typically longer for *de novo* ABC than recurrent ABC (median OS: 24 vs 15 months; five-year survival: 23% vs 13%).
- There were no significant differences in ABC survival between Māori, Pacific and European women diagnosed 2000-2020; women of Asian ethnicity have significantly better survival than all other ethnicities.
- Substantial gains across all survival outcomes were achieved for wāhine Māori, with median OS reaching 17 months (diagnosed 2000-2020). *I'm still here* reported a median OS of 12.8 months for wāhine Māori diagnosed 2000-2015.
- 5-year ABC survival for wāhine Māori diagnosed 2000-2020 was 15%, similar to that of European/other.
- The triple negative subtype was associated with the poorest prognosis, with median OS of 6.7 months and 5-year survival of 3.8%.
- Median OS and 5-year survival for HR−/HER2+ disease was 15 months and 15%.
- Women with HR+ tumours had similar survival patterns: median OS was 23 months for HR+/HER2- and 25 months for HR+/HER2+ disease, and 5-year survival rates were 20% and 19%, respectively.
- Having only non-visceral metastases was associated with a clear survival advantage.

3. Who has ABC in New Zealand?

Over the period 2000-2023, 6,148 New Zealand women and 49 men had a diagnosis of ABC recorded in the Register. Of these, 3,579 were diagnosed between 2015 and 2023.

ABC affects women of all ethnicities, all ages and all environments, both urban and rural. The youngest woman with ABC recorded in the Register was just 21 when diagnosed, the oldest was 102.

Most women (65%) had a diagnosis of EBC that re-presented (recurrent ABC). In about a third, their cancer had already spread beyond the breast when it was found (*de novo* ABC).

In this chapter, we observe the makeup of the ABC cohort and how that has changed. For those with prior EBC, we look at how it was diagnosed, what type it was and how aggressive (based on tumour grade) it was. We also look at sites of metastasis—where in the body it had spread to by the time it was diagnosed as ABC.

3.1 Men with ABC

Male patients are excluded from this analysis, as over a 24-year period, only 49 men were recorded in the Register with an ABC diagnosis—too few to allow any gender-based analyses by ethnicity, age or tumour factors; it is not possible to infer statistical significance from a population this small. Of the 49 men diagnosed with ABC, 38 were of European/Other ethnicity, with remaining 11 spread across other ethnicities, which we are unable to report because of very small numbers and risk of identification.

3.2 ABC demographic data

The following tables and figures describe the study cohort of women diagnosed with ABC.

3.2.1 Ethnicity

European women made up the majority of ABC diagnoses (Figure 3.1), as they did in EBC diagnoses; this is purely a factor of population size. Ethnic composition of the ABC population remained fairly consistent over time (Figure 3.1).

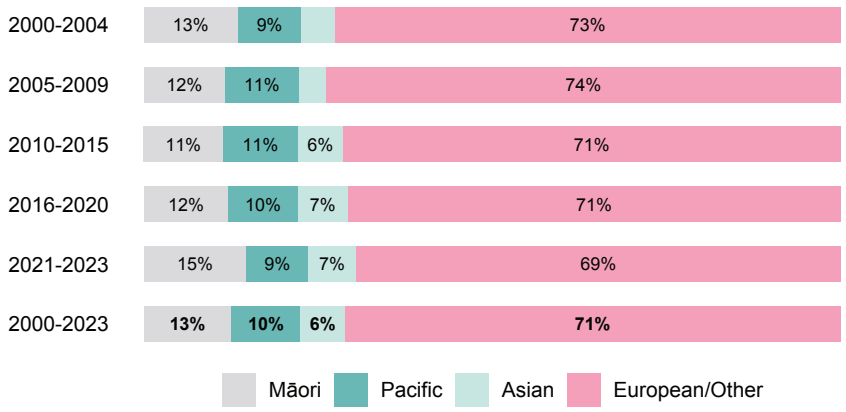

Figure 3.1 ABC diagnoses by ethnicity over time (2000-2023)

Between 2000 and 2023, wāhine Māori and Pacific women accounted for 13% and 10% of all ABC diagnoses, respectively. By comparison, among EBC diagnoses (2003–2020), the proportions were slightly lower—11% for Māori and 6% for Pacific[47] —potentially indicating that these groups are relatively overrepresented in ABC. In contrast, Asian and European women made up 6% and 71% of ABC diagnoses (2000-2023), slightly lower than EBC diagnoses (9% Asian and 74% European/other)[47].

3.2.2 Age at ABC diagnosis

The ABC cohort was older at ABC diagnosis now than in previous years (Figure 3.2). This increase is consistent even when considering only the original Register regions, Auckland and Waikato, indicating it was not due to the inclusion of additional rural regions that might have had an older cohort of women. The increase in age, also reported in other countries[48], possibly reflects an aging population and later recurrences.

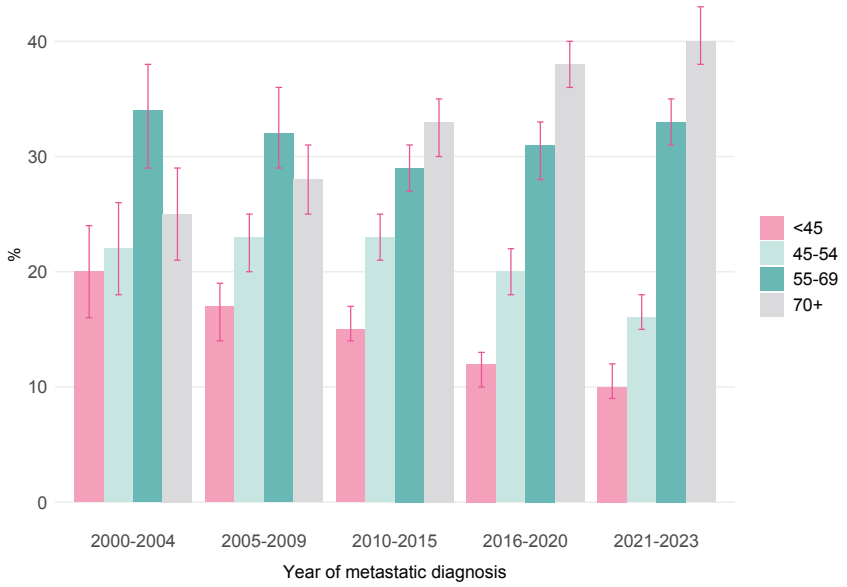

Figure 3.2 Age at metastatic diagnosis (2000-2023)

In the early 2000s, around a quarter of women were diagnosed with ABC at age 70 or older. In 2021-2023, women aged over 70 comprised 40% of diagnoses. This will be due in part to our aging population. In New Zealand, the majority of women are diagnosed with EBC between 45 and 69 years[47]. But the increasing age of ABC diagnoses may also be linked to "low-risk" EBC patients developing recurrent ABC after a longer metastasis-free interval (as late as 15 to 20 years, or more, after initial diagnosis). Lobular cancers, which are also prone to late recurrences only accounted for 16% of all breast cancers in 2021–2023 (Appendix A: Table A.5). They may contribute modestly to the observed rise in age at diagnosis, but cannot explain it fully. Meegdes et al.[48] reported similar changes in an analysis of the changing ABC population in the Netherlands' SONABRE register.

Age at diagnosis by ethnicity

The median age at diagnosis has increased for all ethnicities (Table 3.1).

	Year of metastatic diagnosis														
	2000-2004					2010–2015					2021-2023				
	Māori	Pacific	Asian	European /Other	Overall	Māori	Pacific	Asian	European /Other	Overall	Māori	Pacific	Asian	European /Other	Overall
Median age	51	49	51	60	58	54	54	54	64	60	60	56	57	69	65

Table 3.1 Median age at metastatic diagnosis by ethnicity (2000-2023)

Wāhine Māori and Pacific women comprised 17% and 15% of those diagnosed with ABC below age 45, respectively, but only 7% and 5% of women diagnosed aged 70 or older, respectively (Figure 3.3). Asian women were also only a small percentage of those diagnosed at 70+ (<5%). While longer European life expectancy factors into this, wāhine Māori and Pacific women have a higher incidence of EBC below age 40[47], and younger women are at higher risk of developing recurrent ABC (Table 4.3, see p38). While Asian women accounted for a small percentage of ABC individuals, their age profile for developing the disease (both early and advanced) is also younger.

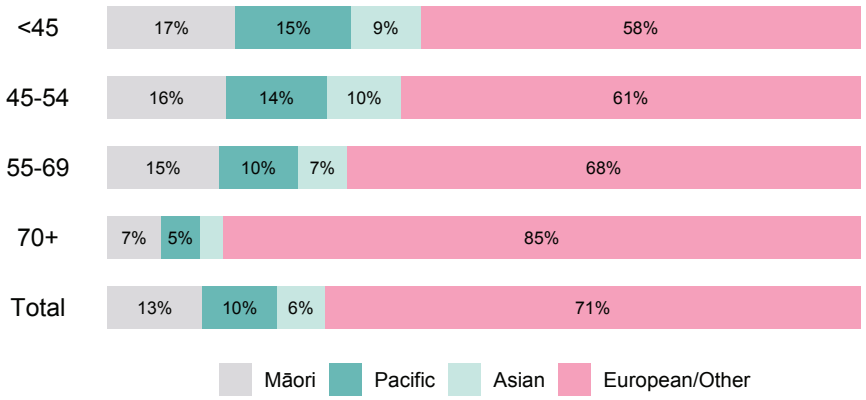

Figure 3.3 Age at metastatic diagnosis by ethnicity (2000-2023)

3.2.3 When ABC is the first diagnosis: understanding *de novo* cases

This section focuses on *de novo* ABC, defined as metastases detected at or around the same time as the primary breast tumour. Among women in the Register, 35.2% were diagnosed with *de novo* ABC between 2000 and 2023 (Figure 3.4). The remaining 64.8% had recurrent ABC following a previous diagnosis of EBC; a group who is discussed in detail in *section 4*.

Note on *de novo* ABC in the Register: When a new region is added to the Register, new diagnoses of EBC and *de novo* ABC are recorded, with recurrences added over time as they occur. Recurrences occurring from EBC diagnosed before the region joined the Register will not be recorded.

This can give a false impression of a "surge" in the proportion of *de novo* diagnoses. For example, from 2020-2023, the proportion of *de novo* diagnoses was over 40% (data not shown), an anomaly explained by the expansion of the Register in 2020 to national coverage. Until recurrences have had more time to occur, a high proportion of the new regions' ABC diagnoses will be *de novo*.

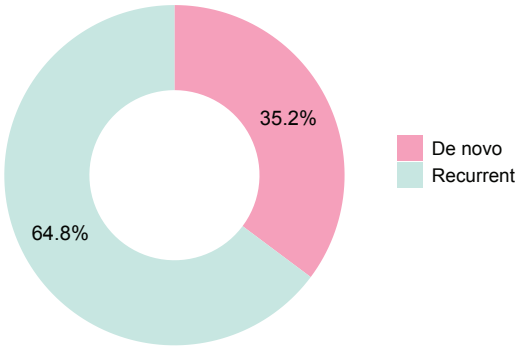

Figure 3.4 Recurrent or de novo ABC (2000-2023)

A *de novo* proportion of ABC sitting at around one third is in line with international studies[49]. *De novo* metastatic diagnoses represent about 5% of new breast cancer diagnoses in New Zealand each year, again consistent with other developed countries.

There are several reasons why the proportion of *de novo* to recurrent ABC might increase in future: if New Zealand should experience increased incidence of breast cancer in younger women not eligible for screening, as has happened in the USA; if participation in screening were to decline for any reason; or, on a more positive note, if new adjuvant treatments reduce the rate of EBC recurrence, making a higher proportion of ABC *de novo* by default.

De novo diagnoses for Māori, Asian and European/other ethnicities ranged between 34% to 37%; however, Pacific women had significantly higher rates of *de novo* ABC than European/Other women (Table 3.2), in line with previous findings[1,47]. This is despite the fact that, pre-COVID-19, Pacific women had almost the same rate of BreastScreen Aotearoa (BSA) participation as European women. While Pacific screening did suffer a major decline during COVID-19, as did all ethnicities to varying degrees, by October 2024 it was back up to 67%[50] and currently sits at 68% (as of October 2025). However, it is difficult to determine what effect this 4-5 year dip in screening coverage had on *de novo* presentations and, consequently, the overall numbers for 2000-2023.

Recurrent vs *de novo*	**Māori (N=775) % (95% CI)**	**Pacific (N=611) % (95% CI)**	**Asian (N=389) % (95% CI)**	**European/Other (N=4373) % (95% CI)**	**Total (N=6148) % (95% CI)**
De novo	36.4% (33.1-39.8)	41.1% (37.2-45.0)	37.3% (32.6-42.2)	34.0% (32.6-35.4)	35.2% (34.0-36.4)
Recurrent	63.6% (60.2-66.9)	58.9% (55.0-62.8)	62.7% (57.8-67.4)	66.0% (64.6-67.4)	64.8% (63.6-66.0)

Table 3.2 Recurrent vs de novo: diagnosis of first advanced breast cancer by ethnicity (2000-2023)

In women aged 70+, the proportion of *de novo* diagnoses was significantly higher than other age groups (Table 3.3), likely reflecting the fact that this population was not eligible for free screening. BSA's eligibility criteria were recently extended to include women aged 70-74, so in years to come this proportion may drop. The screening age extension began in Nelson Marlborough in October 2024 and has now rolled out nationally. In saying this, women aged <44 are also ineligible for BSA screening, yet *de novo* diagnoses were similar to that of the screening age cohorts (45-54 and 55-69 years). This is in line with overseas studies reporting greater recurrence risk in younger women[51].

Recurrent vs *de novo*	**<35 (N=253) % (95% CI)**	**35-44 (N=957) % (95% CI)**	**45-54 (N=1387) % (95% CI)**	**55-69 (N=1779) % (95% CI)**	**70+ (N=1772) % (95% CI)**	**Total (N=6148) % (95% CI)**
De novo	30.4% (25.1-36.4)	26.6% (23.9-29.5)	27.8% (25.5-30.2)	33.6% (31.4-35.8)	48.0% (45.7-50.4)	35.2% (34.0-36.4)
Recurrent	69.6% (63.6-74.9)	73.4% (70.5-76.1)	72.2% (69.8-74.5)	66.4% (64.2-68.6)	52.0% (49.6-54.3)	64.8% (63.6-66.0)

Table 3.3 Recurrent vs de novo : diagnosis of first advanced breast cancer by age

Making screening more flexible and accessible, and the adoption of new technologies more sensitive than mammography, are other strategies to reduce the rate of *de novo* diagnosis.

For women ineligible for screening, *de novo* diagnoses can be prevented by a more effective symptomatic pathway, or with the use of new technologies such as screening blood tests, which could play an important role in personalised or risk-based screening in the future. Breast Cancer Foundation NZ is currently working to establish a pilot of a screening blood test.

The relatively recent expansion of the Register to cover all of New Zealand will allow us to, in future, identify regional variations in rates of *de novo* diagnosis and / or EBC recurrence, for example as a consequence of having limited access to healthcare practitioners or screening services for early diagnosis, or specialist follow-up after EBC[52].

3.3 ABC patients' primary breast cancer: profile and disease progression

In this section, we describe how patients' first breast cancers were detected and their key characteristics, as well as the time from EBC diagnosis to distant recurrence. Figures in sections *3.3.1 (Detection method of primary tumours)* and *3.3.2 (Receptor status, within Characteristics of primary tumours)* include both *de novo* and recurrent cases. Figures in *Grade of EBC* and *Stage of EBC* headings under *section 3.3.2 (Characteristics of primary tumours)* include only recurrent patients and are clearly indicated.

3.3.1 Detection method of primary tumours

Screening allows cancers to be found as small as 2mm and treated earlier, while symptomatic cancers are more likely to be larger and / or more aggressive[53], and thus more likely to recur as ABC.

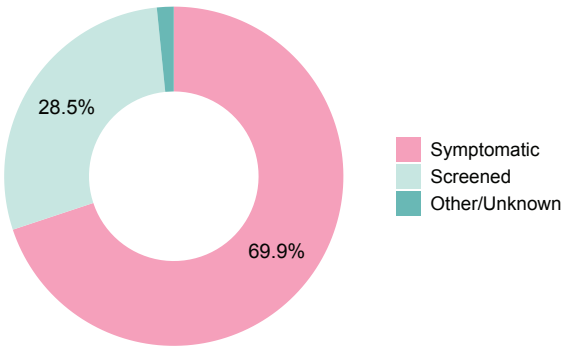

Figure 3.5 First breast cancer detection method for women aged 45-69 at first diagnosis

For ABC patients whose first breast cancer was diagnosed when they were either younger or older than 45-69 (i.e. outside of the eligible BSA[53,(d)] screening age), more than 90% were symptomatic (data not shown). Unsurprisingly, for women in the screening age range, far fewer tumours were detected symptomatically, with a much higher proportion (28.5%) identified through screening compared with women outside the screening age (Figure 3.5). Among women aged 45–69, the proportion of tumours detected through screening was similar across all ethnic groups.

For women outside screening age groups, screening is limited to those willing and able to pay for it, or those eligible for screening at a high-risk breast clinic, usually due to family history of breast cancer. The recent introduction of extending breast screening to include women 70-74 years (as mentioned in *section 3.2.3*) may have an impact on ABC diagnosed in older age groups.

[d] Data prior to December 2023. As of October 2024, the eligibility age for free mammogram screening has been extended to 70-74 years, starting in Nelson Marlborough region, to be followed by phased national rollout[54].

3.3.2 Characteristics of primary tumours

Most ABC patients' primary breast cancer (the original tumour in their breast) was ductal carcinoma (86%); while 13% were lobular and 1% mixed ductal and lobular (data not shown).

Receptor status

Among women with ABC, European women were more likely than Māori or Pacific women to have triple negative disease (Figure 3.6); these figures reflect absolute numbers rather than differences in risk within each ethnic group. Triple negative, the most aggressive type of breast cancer, comprises 15% of ABC, compared to 11% of EBC in New Zealand[55], reflecting the elevated risk of recurrence for this subtype (Table 4.6 and Figure 4.5, see p40).

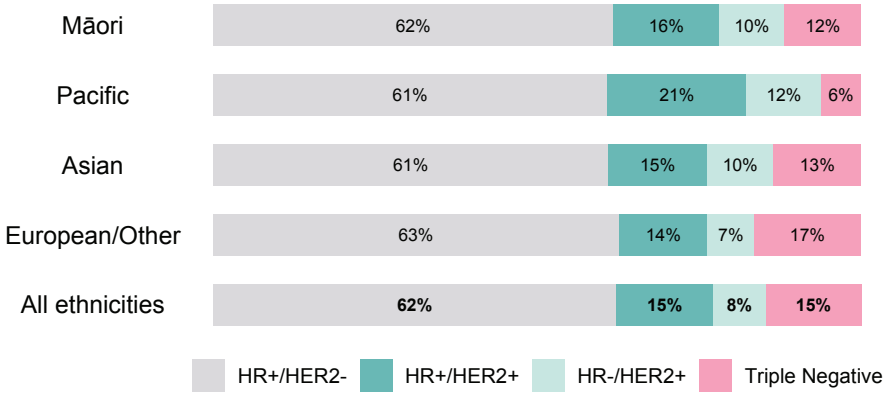

Figure 3.6 Receptor status of first breast cancer diagnosis by ethnicity (2000-2023)

ER and HER2 status

The proportion of ABC that was ER+ at primary breast diagnosis has grown over time, with statistically significant changes between 2005-2009 (65.0%) and 2010-2015 (75.3%) and again between 2010-2015 and 2021-2023 (80.8%) (Figure 3.7). This likely reflects the maturity of our Register data and the later recurrence profile of ER+ breast cancer. While HR+/HER2- EBC has an overall lower risk of recurrence, the risk of distant recurrence for HR+/HER2- EBC at 5 years after diagnosis was approximately 7.4% (Table 4.6 and Figure 4.5, see p40); as the Register data matures further, we will likely see more ER+ ABC recurrences long after initial diagnosis.

The proportion of ABC patients with HER2+ tumours at first breast cancer diagnosis has slowly decreased over time (Figure 3.8), possibly reflective of reduced risk of recurrence due to use of trastuzumab (Herceptin / Herzuma) in EBC. Of ABC diagnosed 2021-2023, 21.0% were HER2+ (at first diagnosis), significantly lower than the 29.5% in 2005-2009, immediately before Herceptin was funded for EBC. In New Zealand, research has found that approximately 14% to 18% of early-stage breast cancers are HER2+[47].

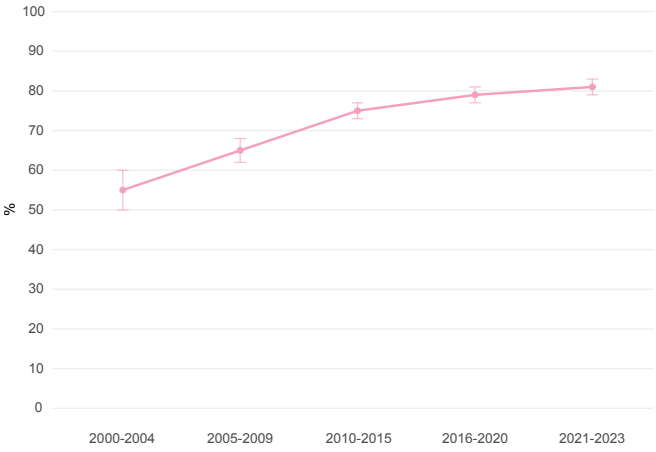

Figure 3.7 Proportion of ER+ at first breast cancer diagnosis (2000-2023)

Figure 3.8 Proportion of HER2+ at first breast cancer diagnosis (2000-2023)

Grade of EBC

Grade is a measure of tumour "aggressiveness" and, as expected, nearly half of the recurrent ABCs had a grade 3 EBC (Figure 3.9), despite only 29% of EBCs being of grade 3[47]. Shifts in proportions of grade 2 and 3 since 2005-2009 have not been statistically significant. There has been an increase in the proportion of recurrences originating from grade 1 EBC over time. This is probably due to increasing maturity of the Register data, aligning with our findings that recurrent grade 1 EBC has a longer median metastasis-free interval than grade 3 (72 vs 26 months, Figure 3.20, see p30), and that while the rate of recurrence for grade 1 EBC is very low, it rises from 1.4% cumulative risk of recurrence at 5 years to 3.3% at 10 years (Figure 4.6, see p41). Interestingly, a Danish study found that grade 1 breast cancers are at higher risk of longer-term late recurrence than grade 3[56]. These researchers followed patients (who were recurrence-free at 10 years) for up to 32 years; patients whose original tumour was grade 3, particularly those without node involvement, had a lower adjusted hazard ratio of late recurrence compared with those whose tumour was grade 1.

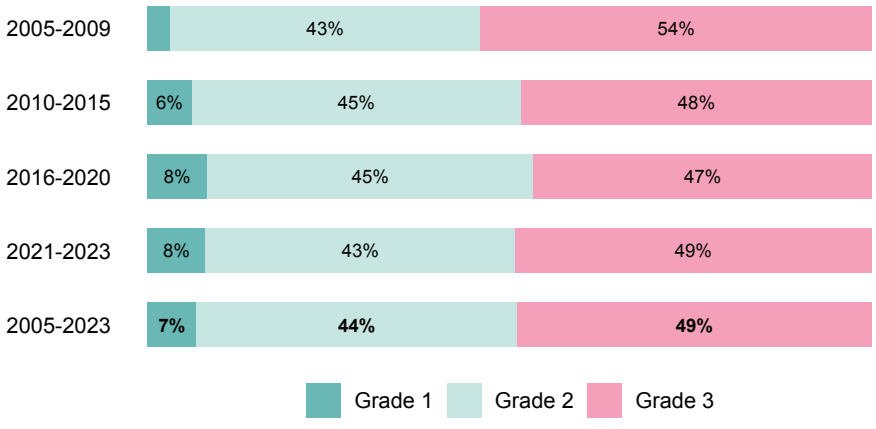

Figure 3.9 Recurrent ABC patients by grade of early breast cancer (2005-2023)

Stage of EBC

The proportion of patients whose initial cancer was stage 1[e] has increased (statistically significant change between 2010-2015 and 2021-2023) (Figure 3.10), while stage 3[e] has decreased (significant change from 2005-2009 to 2021-2023). As stated elsewhere, this is likely due to an increasing proportion of late recurrences of earlier stage cancers in the Register as data matures. This chart shows the proportion of patients with stage 1, 2, or 3 EBC in the recurrent ABC population; to understand the probability of recurrence by individual EBC stage, see Figure 4.7, p42.

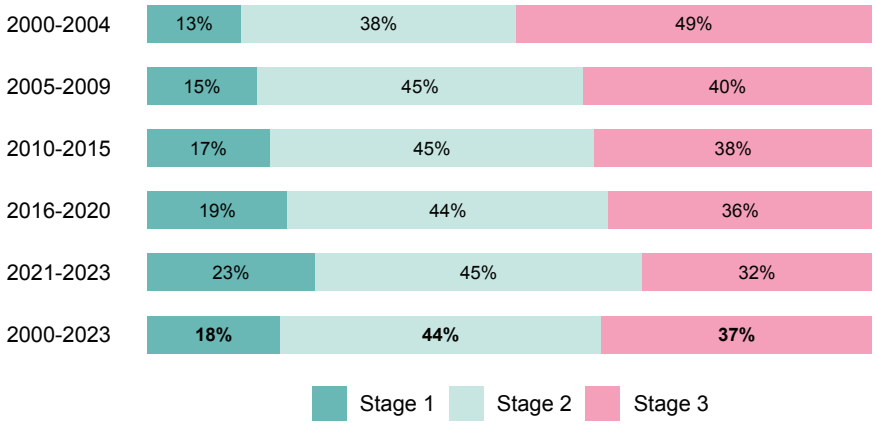

Figure 3.10 Recurrent ABC patients by stage of early breast cancer (2000-2023)

3.3.3 Metastasis-free interval (MFI)

The time from primary breast cancer diagnosis to the development of metastatic recurrence is referred to as the distant metastasis-free interval (DMFI) or metastasis-free interval (MFI); as per definition, **MFI analyses in this section exclude *de novo* ABC diagnoses and refer only to recurrent ABC**. A longer MFI is generally associated with longer survival after a diagnosis of ABC.

The report estimated that median MFI for all women recurrent ABC diagnosed 2000 to 2023 was 33 months (data not shown). *I'm still here* reported that the median MFI for ABC women diagnosed during 2000-2015 was 30 months. The median MFI improved over time, increasing from 30 months in 2000-2015 to 39 months in 2016-2023 (Figure 3.11). However, more analysis is required to determine whether this is due to improved treatment for EBC leading to longer MFI, or if it merely reflects the increasing maturity of the Register and the increasing population of late metastases.

[e] Anatomic TNM staging was derived using individual T (tumour), N (node), and M (metastasis) data points, based on the American Joint Committee on Cancer (AJCC) 8th edition criteria.

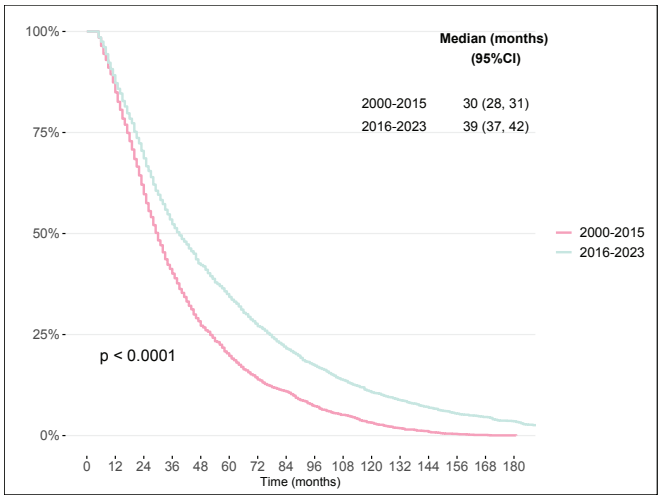

Figure 3.11 Metastasis-free probability by year of ABC diagnosis (2000-2023)

Metastases free interval = the time from diagnosis to metastatic recurrence.

The graphs in this section present the probability (likelihood) of remaining free of metastases at each time point.

MFI by ethnicity

Median MFI (2000-2023) did not differ between ethnicities (Figure 3.12).

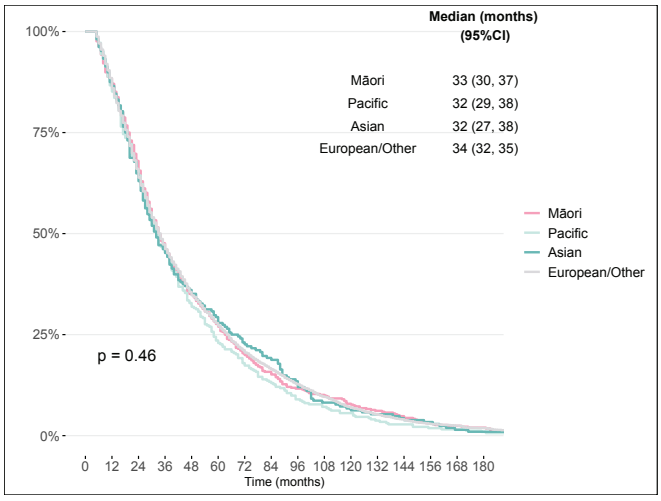

Figure 3.12 Metastasis-free probability by ethnicity (2000-2023)

When assessed over time, significant improvements were observed for Māori, Pacific and European/other ethnicities (Figure 3.13, Figure 3.14, and Figure 3.16). Interestingly, for Asian women there was no significant change in MFI from 2000-2015 to 2016-2023 (Figure 3.15).

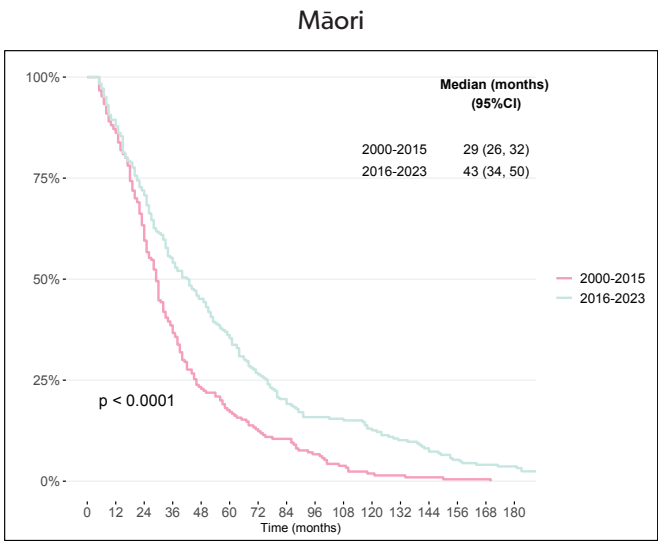

Figure 3.13 Metastasis-free probability for wāhine Māori by year of ABC diagnosis (2000-2023)

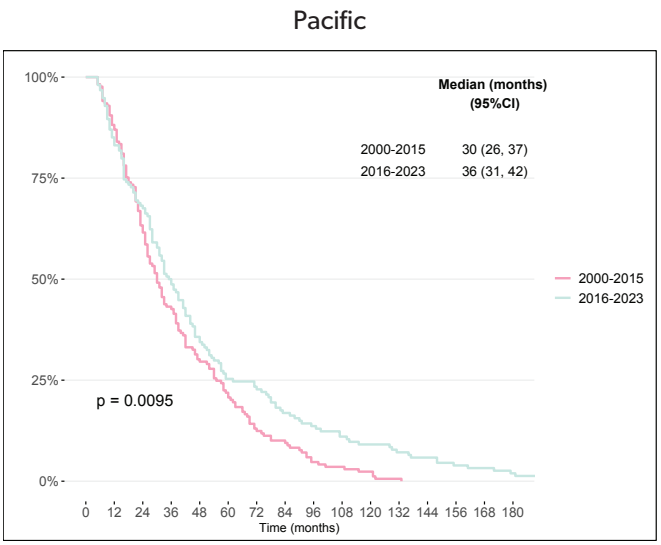

Figure 3.14 Metastasis-free probability for Pacific women by year of ABC diagnosis (2000-2023)

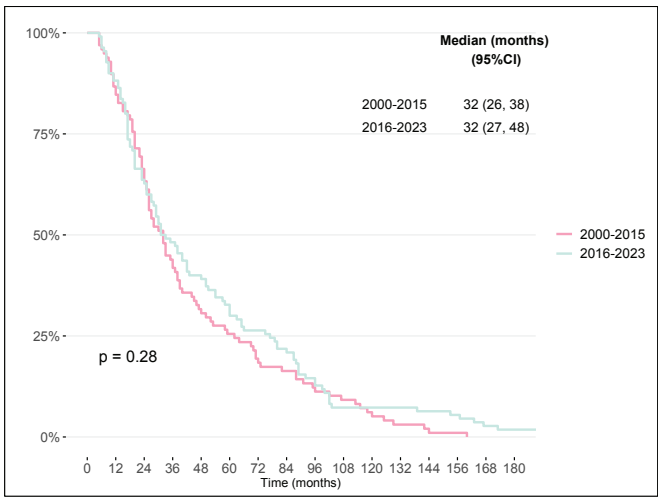

Figure 3.15 Metastasis-free probability for Asian women by year of ABC diagnosis (2000-2023)

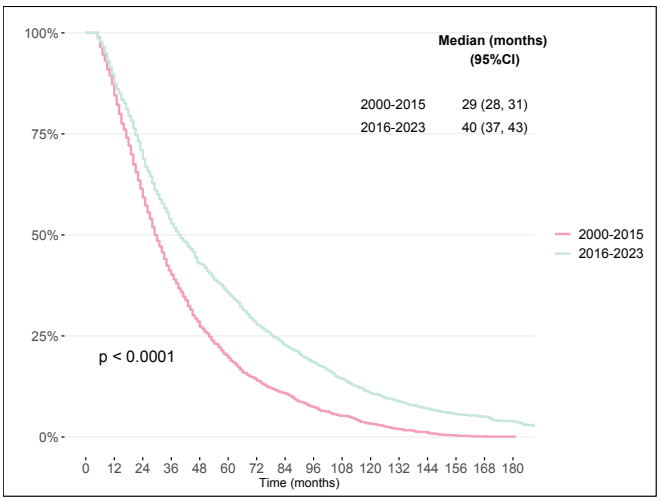

Figure 3.16 Metastasis-free probability for European/other women by year of ABC diagnosis (2000-2023)

MFI by age and detection method

Median MFI was longer for patients whose EBC was detected through screening than symptomatic (45 vs 31 months) (Figure 3.17); lower-risk cancers found via screening tend to take longer to develop metastases. Women aged under 45 and over 70 had the shortest MFI, while women of screening age (45-69 years) had the longest (Figure 3.18).

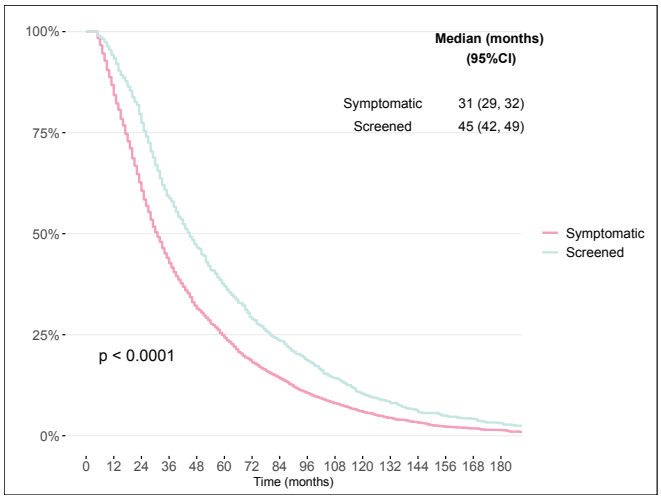

Figure 3.17 Metastasis-free probability by detection method of early breast cancer (2001-2023). NB: Data for detection method of early breast cancer among relapsed patients is available from 2001 onwards

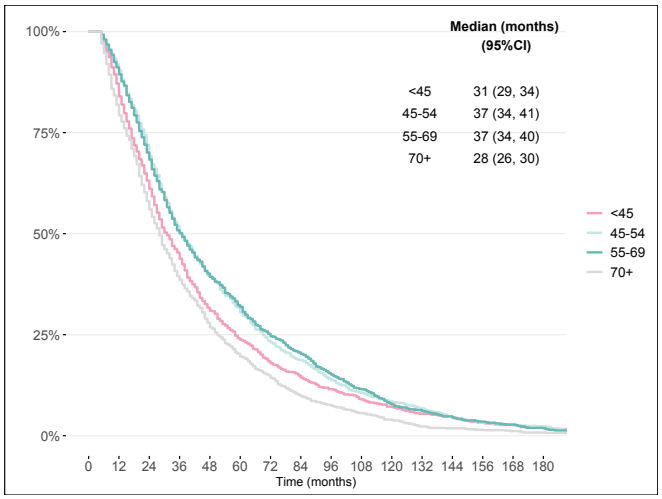

Figure 3.18 Metastasis-free probability by age (2000-2023)

MFI by tumour characteristics

Triple negative and HR−/HER2+ subtypes have significantly shorter MFI than HR+ cancers (Figure 3.19). This is in line with other studies reporting earlier relapse for HER2+ and triple negative subtypes and later recurrence patterns for ER+ subtypes[56, 57, 58]. The longest median MFI was observed for HR+/HER2- (39 months)—yet it also emphasises that many recurrences occur beyond the "5-year mark", underscoring the need for long-term vigilance in this subtype.

Grade 3 EBC median MFI is much shorter than grade 1 or 2 (Figure 3.20).

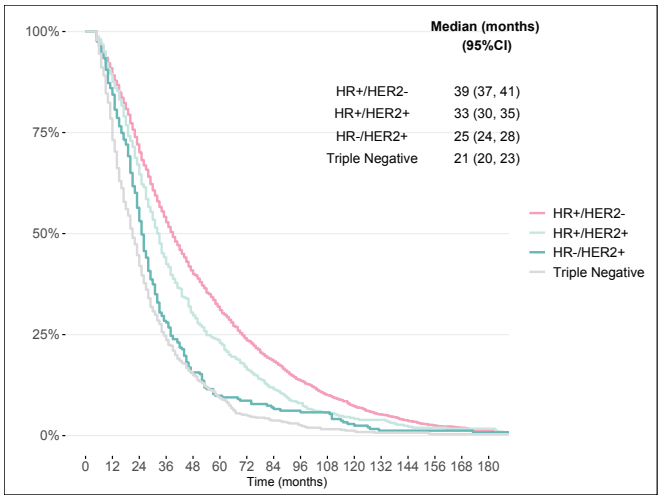

Figure 3.19 Metastasis-free probability by receptor status at EBC diagnosis (2000-2023)

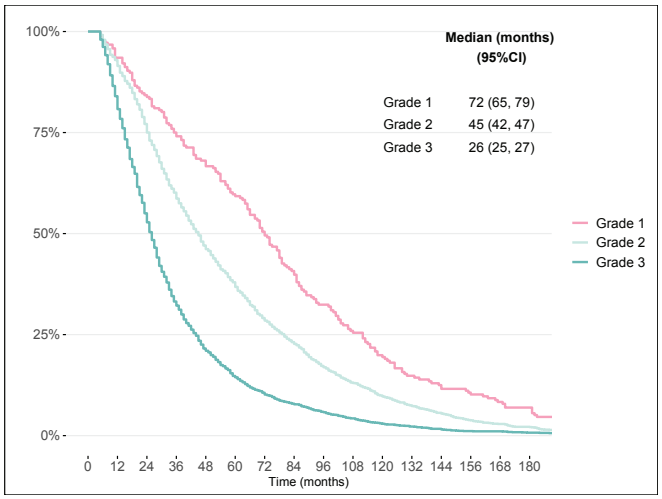

Figure 3.20 Metastasis-free probability by EBC grade (2000-2023)

The lower-risk stage 1 cancers have a much longer MFI than stage 3 (Figure 3.21). Late-presenting ABC will increasingly arise from those originally diagnosed at stage 1.

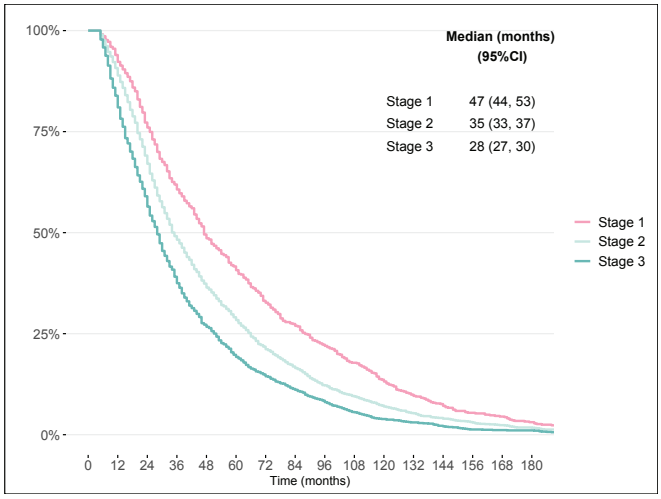

Figure 3.21 Metastasis-free probability by stage (2000-2023)

ABC survival by MFI

The shorter median survival for those with a MFI less than 2 years (5-23 months) (Figure 3.22, Table 3.4) reflects the more rapid recurrence and unfavourable prognosis for triple negative EBC, along with more patients with higher-risk tumour factors (grade, stage, etc) in other subtypes.

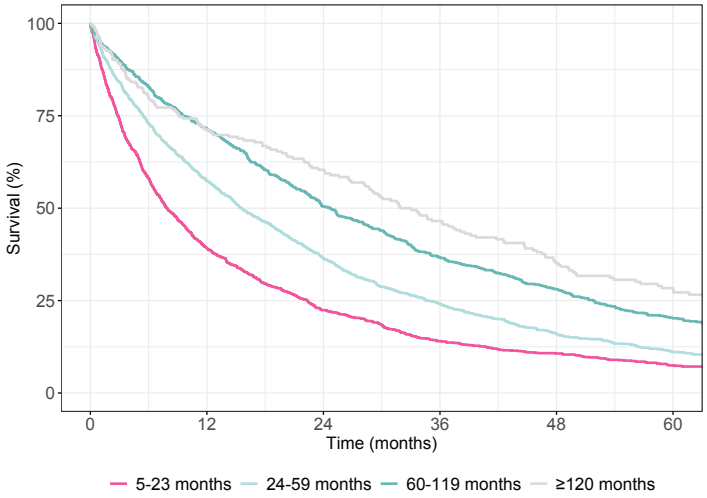

Figure 3.22 Overall survival by metastatic-free interval in patients with recurrent ABC (2000-2020)

MFI	Median OS, months (95% CI)
All	**15 (14, 16)**
5-23 months	7.9 (7.2, 9.0)
24-59 months	16 (14, 17)
60-119 months	25 (23, 28)
≥120 months	32 (28, 39)

Table 3.4 ABC median overall survival (OS) by metastatic-free interval (2000-2020)

In summary

- The ABC cohort is older at ABC diagnosis now than in previous years, with women aged 70+ comprising 40% of diagnoses in 2021-2023. This trend was consistent across all ethnicities, and is likely due to a mix of aging population and late recurrences of low-risk EBC.
- Wāhine Māori and Pacific women comprised 17% and 15% of those diagnosed with ABC below age 45, respectively, but only 7% and 5% of women diagnosed aged 70 or older, respectively.
- Grade 3 early breast cancers make up nearly half of ABC diagnoses.
- The proportion of ABC that is ER+ has grown over time, from 65% in 2005-2009 to 81% in 2021-2023, likely related to increasing maturity of Register data and late recurrences of ER+ EBC.
- Stage 1 EBC now forms a greater proportion of ABC diagnoses because of late relapses.
- The median metastasis-free interval (MFI) between diagnosis of EBC and ABC was 33 months, though this varied by subtype: HR+/HER2- was 39 months, HR+/HER2+ was 33 months, HR−/HER2+ was 25 months and triple negative was 21 months.

4. Finding ABC: Surveillance to Diagnosis

> ***In their notes they said I was "pragmatic". Probably sums up how I felt. I suspected that [ABC] would be the diagnosis; over 15 years' exposure to metastatic breast cancer as a member of a breast cancer survivors' dragon boat team, I knew it was a possibility. We lost more than a boat load (22) of women to breast cancer during my involvement.***
>
> *- Patient*

In this section, we review current surveillance strategies following EBC and examine the aspirational possibility of reducing distant recurrent ABC through emerging surveillance trends. We also present the first near national analysis of recurrence risk across various factors *(section 4.2)*. The latter part of this section focuses on ABC at diagnoses (*de novo* or recurrent), presenting data on the sites of metastasis at ABC diagnosis *(section 4.3)*, and reviewing patients' responses to our survey, which provide valuable insights into their experiences of receiving an ABC diagnosis *(section 4.4)*.

4.1 Surveillance after early breast cancer

Public health messaging has emphasised the importance of recognising early signs and symptoms of cancer, although this focus is largely directed towards individuals without a prior cancer diagnosis. The principle that early detection is inherently beneficial has become ingrained among many patients with a history of breast and other cancers. This prevailing belief raises critical questions regarding the clinical value of identifying occult metastases in asymptomatic patients and, if warranted, the most appropriate modalities for surveillance[59].

In a large cohort (>4000) of women with EBC followed for up to 24 years, during the initial 5-year period, distant recurrences were more common among patients with ER-negative disease compared with those with ER-positive disease (27.1% vs 23.4%)[57]. The temporal pattern of distant recurrence differs for HR+ and HR− breast cancer. HR− breast cancers tend to have a higher risk of distant recurrence in the first 5 years after diagnosis, but the annual risk declines rapidly thereafter and is relatively low beyond 5 years[57]. In contrast, the annual risk for HR+ remains persistently elevated up to 15 to 20 years or longer[60]; a recent study reported distant recurrence as late as 32 years[56]. The current standard of care for follow-up after EBC recommends annual hospital-based mammogram screening with clinical breast exam (CBE) for 5 years after completing treatment, then a return, if eligible, to 2-yearly screening with BreastScreen Aotearoa (BSA).

However, this surveillance is aimed at finding local or regional recurrence—cancer in the breast or armpit area that could be cured with further surgery and other treatment[61]. While it is important to find and treat such recurrences, mammography is not intended to detect metastatic disease.

Globally, major oncology guidelines (e.g. ASCO) recommend regular history, physical examination, and annual mammography, while advising against routine CT, MRI, PET-CT, bone scans, in the absence of clinical suspicion[62] because the risk–benefit balance does not support this[63]. Studies completed in the 1980s and 1990s, when imaging was less sensitive and treatments less effective than today, showed no survival benefit in finding ABC early[64]. Current studies indicate that modern imaging technologies, such as PET-CT and whole-body MRI, detect recurrences more accurately than traditional imaging[65,66]; however, studies have not demonstrated any survival benefit from using these modalities for routine post-treatment surveillance[59,67,68].

With limited evidence of survival advantage, but documented downsides — false positives, overdiagnosis, unnecessary biopsies, radiation exposure, increased anxiety, and the burden of additional follow-up procedures[67]—follow-up cancer surveillance is guided by a key principle of survivorship care: do no harm,

minimise unnecessary intervention, and balance vigilance with quality of life. In the absence of routine intensive imaging, these principles rely on careful clinical assessment and timely recognition of patient-reported symptoms to detect recurrence: for a woman whose complaints of back pain or a persistent cough were dismissed over a period of months, only for her to eventually be diagnosed with ABC that has spread to several sites, the delay can add up to a missed opportunity to keep the disease under control and an earlier descent into poor quality of life.

> ***"After months of waiting including going to ED because of pain and asking if it could be cancer and told no - words can't describe how horrible the experience was."***
>
> *- Patient*

Surveillance has implications beyond survival. For many survivors, regular follow-up can contribute to patient empowerment, offering a sense of control, reassurance, and continuity of care[69,70]. Follow-up clinic appointments may provide an opportunity for women to discuss concerning symptoms with their clinical team—managing long-term treatment effects, psychosocial needs, and overall wellbeing[71], and addressing side effects that might prevent women from adhering to endocrine therapy[72,73], as non-adherence to endocrine therapy is likely associated with a higher risk of recurrence[74]. The advent of low-toxicity, sometimes oral, drugs with much improved survival data, such as CDK4/6 inhibitors, have made early diagnosis potentially more urgent from a clinical perspective[75]. Results of the few modern era trials underway to gather evidence for surveillance after EBC[76,77] are eagerly anticipated by clinicians.

Given these realities, there is growing interest in moving away from "one-size-fits-all" surveillance toward a personalised, risk-based follow-up—for instance, a recent position statement from the European Society of Breast Imaging (ESBI) argues for tailoring surveillance protocols to individual risk factors[78]. The results from the Dutch NABOR trial aims to clarify individualised care, examining how personalised, risk-based follow-up and supportive aftercare after treatment for EBC could address both clinical needs and patient concerns[77]. Biomarkers such as circulating tumour DNA (ctDNA) could offer tailored forms of surveillance[79] that are more accessible in future, but current use is predominantly limited to clinical trials, of which many are currently underway and which may change practice in the near future[80].

Another aspect of the growing clinical interest in finding better ways to follow up patients after EBC, may be the budding belief that some ABC patients—albeit, a very small proportion right now—can receive "curative regimens", through a multidisciplinary approach to oligometastatic disease[2,81,82] (see *section 6.1*).

As elsewhere, there is a need for a modern, fit-for-purpose surveillance strategy in the New Zealand context. This should include patient and clinician education (including primary care), a clearly defined referral pathway, guidance on appropriate technologies and timing for surveillance, and access to appropriate multidisciplinary care.

4.1.1 Genomic testing

Emerging genomic and proliferation assays can provide information on a patient's risk of recurrence and may support risk-adapted follow-up after EBC. While primarily used to guide adjuvant therapy decisions, these tests have potential relevance for tailoring surveillance intensity.

The NZ Breast Special Interest Group (SIG) of clinicians, Breast Cancer Foundation NZ and Breast Cancer Aotearoa Coalition have all at times advocated for funding of at least one genomic test that predicts risk of recurrence. Retrospective studies suggest they may also be useful in predicting response to neoadjuvant chemotherapy[83,84]. Tests used in HR+ EBC, such as Oncotype DX, ProSigna, Mammaprint and EndoPredict are expensive (from $2,500 to $6,000 per patient), but have been seen as potentially financially justifiable by health systems elsewhere[85] and by private insurers in New Zealand. In New Zealand, Nelson Marlborough region is the only one we are aware of providing funded access to testing for high-risk patients. The HER2DX test is less well-known but is increasingly being used for prediction and prognosis in HER2+ ABC[86], and may help to optimise escalation or deescalation of neoadjuvant therapy. Because these tests stratify prognosis and recurrence risk, they—at least theoretically—support surveillance tailoring:

patients with low genomic risk might be followed less intensively, whereas those with high genomic risk might be considered for more frequent follow-up or inclusion in surveillance protocols.

Ki-67 is a measure of tumour proliferation that can inform understanding of a patient's risk of recurrence[87]; it can be analysed in any breast pathology lab. However, the traditional method of assessing Ki-67 is time-consuming for pathologists; as a result, reporting has been infrequent in most regions. In 2024, Breast Cancer Foundation NZ funded a workshop for pathologists led by Dr Nirmala Pathmanathan, a prominent Australian pathologist who has devised an efficient method of analysing Ki-67. In the absence of funded genomic testing, Ki-67 can provide useful information about tumour aggressiveness: a recent study suggests Ki-67 can be combined synergistically with a clinical risk score to achieve a prognostic accuracy closer to that of EndoPredict[88].

Genomic assays and proliferation markers such as Ki 67 provide valuable insights into tumour aggressiveness and recurrence risk, and their use highlights how our understanding of risk is evolving—an evolution that also calls for re-evaluating historical recurrence rates in the context of modern, more effective treatments.

4.2 Rethinking recurrence rates

We have mentioned the later relapse pattern of some breast cancer subtypes. Now, we ask, how many people relapse after EBC in New Zealand and when does it happen? Throughout this section, the term "recurrence" refers to distant recurrence.

Recurrence rates of EBC are often reported to be 20% to 30%[89], based on data from older studies dating back to the early 1990s. Those studies likely do not reflect current real-world outcomes for patients in clinical practice in OECD countries today. Some researchers have estimated the risk of recurrence for patients diagnosed with EBC after the year 2000 to be 19% to 25% lower than those diagnosed in the 1990s[89]. More recently, recurrence rates for patients diagnosed after the year 2000, often presented in analyses of individual subtypes, are reported to be around 10% to 15%[51,90].

While these numbers may not be entirely accurate, given the challenges most countries experience in tracking recurrent diagnoses, the downward shift is real. An understanding of present-day recurrence rates, grounded in the delivery of modern treatments, can reassure lower-risk patients, while identifying the subgroups whose risk remains stubbornly high, either in the short or long term. This understanding is essential to the affordability and effectiveness of personalised follow-up after EBC.

In New Zealand, Lao et al.[91] investigated risk of recurrence for women in Auckland and Waikato diagnosed from 2000 (Auckland) or 1991 (Waikato) to 2017 recorded in the then-regional Registers. The study found the cumulative incidence of metastatic relapse to be 11.2% at 5 years, and 16.5% at 10 years[91]. An Australian study showed a 14-year cumulative incidence of metastatic relapse of 22% for women diagnosed in 2001-2002[40].

The following section presents the first analysis of cumulative incidence of recurrence across all four legacy regions of the Register: Auckland, Waikato, Wellington (diagnoses from 2010), and Christchurch (diagnoses from 2009), which in 2019 represented 70% of all breast cancer diagnoses. National data, collected since 2020, is not yet mature enough for relapse studies.

4.2.1 Cumulative incidence of recurrent ABC

In order to assess how the risk of relapse has changed in an era of treatment advances, we compared the cumulative incidence of distant recurrence for two different EBC diagnosis cohorts, 21,871 women diagnosed with stage 1-3 invasive breast cancer in 2000-2009 (n=8,257) and 2010-2017 (n=13,614). These are timed to take into account some important changes to systemic therapy for EBC in New Zealand that would be expected to lower relapse rates for those diagnosed in the latter part of the first cohort, and in the 2010-2017 cohort. In 2007-2008, the aromatase inhibitors anastrozole, letrozole and exemestane

were approved for use in EBC (previously metastatic only). In 2007, Herceptin (trastuzumab) plus docetaxel were funded for HER2+ early breast cancer[92]; docetaxel, a taxane chemotherapy, was extended to other EBC subtypes in 2011[93]. Changes also occurred in radiation therapy for EBC over this time[94], yet unlikely to have had any impact on risk of relapse.

Our 5- and 10-year cumulative risk of recurrence for women diagnosed 2000-2017 was 9.8% and 13% (Table 4.1). This is lower than the study by Lao et al.[91], perhaps because no patients from pre-2000 were included.

What it is cumulative incidence?

Cumulative incidence tells us how likely it is that someone will develop a disease during a certain period of time. All cumulative incidence in this section refers to distant recurrence.

In Table 4.1, women diagnosed with EBC between 2000 and 2017 had a 4.3% risk of developing distant recurrent ABC within 2 years, and then 13% within 10 years.

Cumulative risk of recurrence decreased over time. Table 4.1 and Figure 4.1 show greatly reduced risk of recurrence at 2-, 3-, 5-, and 10-year time points. Note, this data excludes women diagnosed with ABC within four months of EBC (i.e. women who are categorised with *de novo* ABC).

Women diagnosed in 2010-2017 were a third less likely to relapse than those diagnosed 2000-2009 *(Hazard ratio = 0.67; 95% CI 0.62, 0.73, p < 0.001; data not shown)*. This likely reflects the improved adjuvant treatments available, described above.

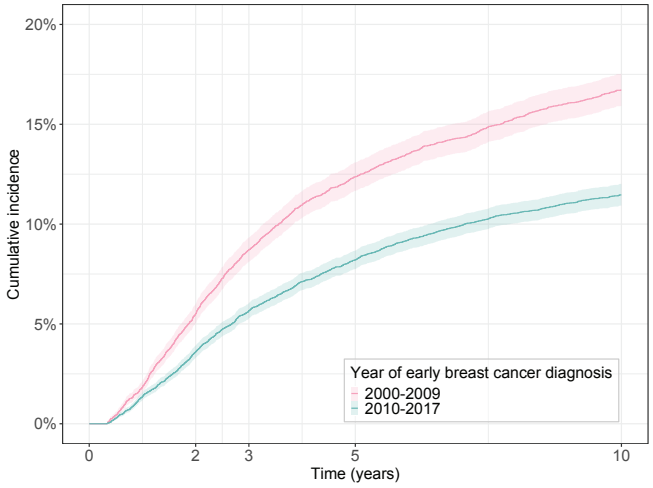

Figure 4.1 Cumulative incidence of recurrent ABC over time (2000-2017)

Year of early breast cancer diagnosis	2-year (95% CI)	3-year (95% CI)	5-year (95% CI)	10-year (95% CI)	*p* value[1]
2000-2017 (n = 21,871)	**4.3% (4.1%, 4.6%)**	**6.8% (6.5%, 7.1%)**	**9.8% (9.4%, 10%)**	**13% (13%, 14%)**	
2000-2009 (n = 8,257)	5.5% (5.0%, 6.0%)	8.7% (8.1%, 9.3%)	12% (12%, 13%)	17% (16%, 18%)	<0.001
2010-2017 (n = 13,614)	3.6% (3.3%, 3.9%)	5.7% (5.3%, 6.1%)	8.2% (7.8%, 8.7%)	11% (11%, 12%)	

[1]Gray's Test

Table 4.1 Cumulative incidence of recurrent ABC by year of early breast cancer diagnosis (2000-2017)

Risk of recurrence by ethnicity

Across all ethnicities, the cumulative incidence of recurrence was significantly lower for women diagnosed with EBC in 2010–2017 than for those diagnosed in 2000–2009 (Table 4.2).

Wāhine Māori had a higher incidence of relapse at 10-years than their European counterparts across 2000-2009, but by the 2010-2017 period, there were no significant differences, suggesting that improvements for wāhine Māori have closed the gap with European.

The cumulative incidence of relapse for Pacific women was higher than European women (2000-2017). Despite reductions in their cumulative risk of recurrence over time, the risk of relapse for Pacific women in 2010–2017 remained markedly higher than that of European women.

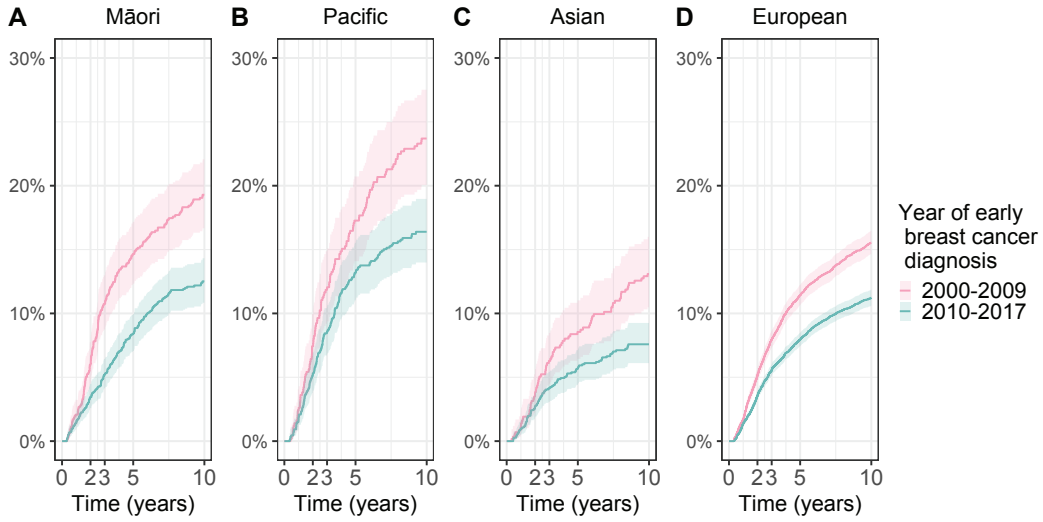

Figure 4.2 Cumulative incidence of recurrent ABC by ethnicity and year of early breast cancer diagnosis (2000-2017)

Group	Year of EBC diagnosis	N	2-year (95% CI)	3-year (95% CI)	5-year (95% CI)	10-year (95% CI)	*p* value[1]
Māori	**2000-2017**	**2,242**	**4.4% (3.6%, 5.3%)**	**7.2% (6.2%, 8.3%)**	**11% (9.5%, 12%)**	**15% (14%, 17%)**	**<0.001**
	2000-2009	819	6.0% (4.5%, 7.8%)	11% (8.7%, 13%)	15% (12%, 17%)	19% (17%, 22%)	
	2010-2017	1,423	3.4% (2.6%, 4.5%)	5.2% (4.1%, 6.4%)	8.4% (7.1%, 10%)	13% (11%, 14%)	
Pacific	**2000-2017**	**1,363**	**6.1% (4.9%, 7.4%)**	**9.8% (8.3%, 11%)**	**15% (13%, 17%)**	**19% (17%, 21%)**	**<0.001**
	2000-2009	498	7.4% (5.3%, 10%)	12% (9.2%, 15%)	17% (14%, 21%)	24% (20%, 28%)	
	2010-2017	865	5.3% (4.0%, 7.0%)	8.6% (6.8%, 11%)	13% (11%, 16%)	16% (14%, 19%)	
Asian	**2000-2017**	**1,686**	**3.1% (2.3%, 4.0%)**	**4.9% (3.9%, 6.0%)**	**6.6% (5.5%, 7.9%)**	**9.6% (8.2%, 11%)**	**<0.001**
	2000-2009	573	3.8% (2.5%, 5.6%)	6.3% (4.5%, 8.5%)	8.6% (6.4%, 11%)	13% (10%, 16%)	
	2010-2017	1,113	2.7% (1.9%, 3.8%)	4.1% (3.1%, 5.4%)	5.7% (4.4%, 7.1%)	7.6% (6.1%, 9.3%)	
European	**2000-2017**	**16,205**	**4.1% (3.8%, 4.5%)**	**6.5% (6.1%, 6.9%)**	**9.3% (8.8%, 9.7%)**	**13% (12%, 13%)**	**<0.001**
	2000-2009	6,160	5.1% (4.6%, 5.7%)	8.0% (7.3%, 8.7%)	11% (11%, 12%)	16% (15%, 16%)	
	2010-2017	10,045	3.5% (3.2%, 3.9%)	5.6% (5.1%, 6.0%)	7.9% (7.4%, 8.5%)	11% (11%, 12%)	

[1]Gray's Test

Table 4.2 Cumulative incidence of recurrent ABC by ethnicity (2000-2017)

Risk of recurrence by age

Women aged under 45 at EBC diagnosis had a higher risk of distant recurrence (Table 4.3). Not surprisingly, women of eligible age for BSA screening (45-69 years) have the lowest risk of recurrence, as a result of identifying EBC at an earlier stage and grade in this cohort[47]. After the current screening eligibility age, risk of recurrence creeps again for women aged 70+ (this may also reflect less aggressive treatment for EBC in this age group).

Age at EBC diagnosis	N	2-year (95% CI)	3-year (95% CI)	5-year (95% CI)	10-year (95% CI)
<45	3,001	7.9% (7.0%, 8.9%)	12% (11%, 13%)	17% (16%, 18%)	22% (20%, 23%)
45-54	6,072	3.3% (2.9%, 3.8%)	5.6% (5.1%, 6.2%)	8.3% (7.7%, 9.0%)	12% (11%, 13%)
55-69	8,138	3.0% (2.6%, 3.4%)	5.0% (4.5%, 5.4%)	7.2% (6.6%, 7.8%)	11% (10%, 11%)
70+	4,660	5.6% (5.0%, 6.3%)	8.3% (7.6%, 9.2%)	12% (11%, 13%)	15% (14%, 16%)

Table 4.3 Cumulative incidence of recurrent ABC by age (2000-2017)

The cumulative incidence of recurrence dropped between 2000-2009 and 2010-2017 for women across all age groups, particularly for longer-term recurrence (5- and 10-year; Figure 4.3). The introduction of aromatase inhibitors for EBC, funding of trastuzumab for HER2 positive disease, and broader use of taxane chemotherapy likely contributed to this decline.

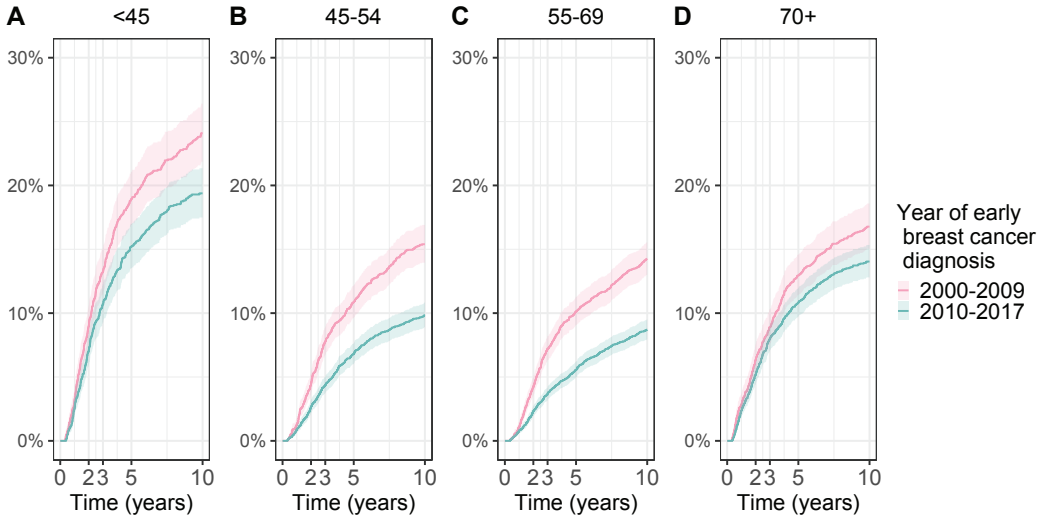

Figure 4.3 Cumulative incidence of distant recurrent ABC by age and year of early breast cancer diagnosis (2000-2017)

Risk of recurrence by region

Regional comparisons of relapses across the two time periods (2000–2009 and 2010–2017) are only possible for Auckland and Waikato, as Wellington and Christchurch contributed data to the Register only after 2009/2010.

Auckland and Waikato showed similar improvements in cumulative incidence of recurrent ABC across EBC diagnosis periods (Figure 4.4, Table 4.4), with no statistically significant regional differences. These results should be interpreted cautiously given Waikato's smaller population. Further analysis of factors such as adherence to endocrine therapy may provide additional insights, as improvements over time likely reflect the introduction of newer adjuvant treatments, as noted earlier in this section.

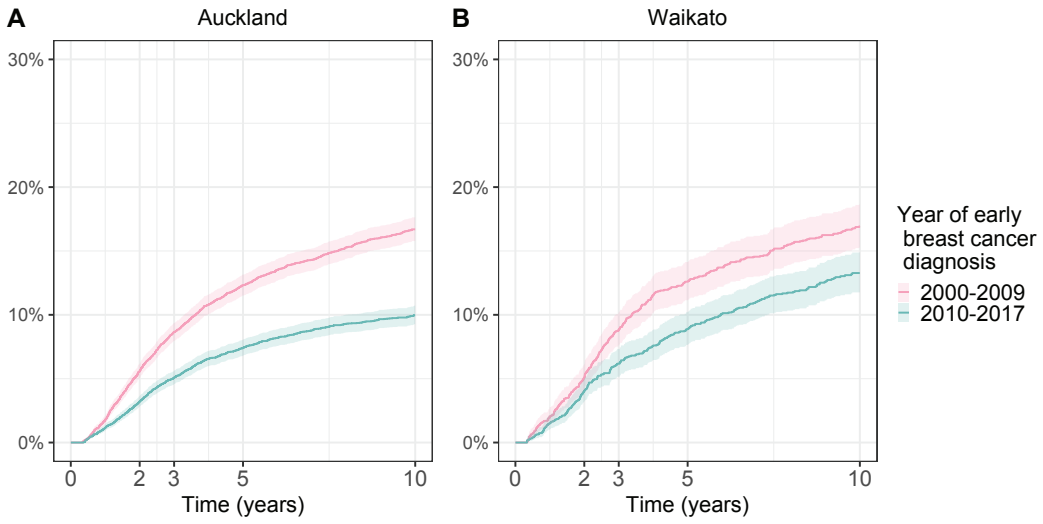

Figure 4.4 Cumulative incidence of recurrent ABC for Auckland and Waikato (2000-2017)

Region	Year of early breast cancer diagnosis	2-year (95% CI)	3-year (95% CI)	5-year (95% CI)	10-year (95% CI)	*p* value[1]
Auckland	**2000-2017 (n= 12,926)**	**4.4% (4.0%, 4.7%)**	**6.8% (6.4%, 7.2%)**	**9.8% (9.3%, 10%)**	**13% (13%, 14%)**	**<0.001**
	2000-2009 (n=6,206)	5.6% (5.1%, 6.2%)	8.6% (8.0%, 9.4%)	12% (12%, 13%)	17% (16%, 18%)	
	2010-2017 (n=6,720)	3.2% (2.8%, 3.7%)	5.1% (4.6%, 5.6%)	7.4% (6.8%, 8.1%)	10% (9.3%, 11%)	
Waikato	**2000-2017 (n = 3,785)**	**4.5% (3.9%, 5.2%)**	**7.5% (6.7%, 8.4%)**	**11% (9.8%, 12%)**	**15% (14%, 16%)**	**<0.001**
	2000-2009 (n=1,890)	5.1% (4.2%, 6.1%)	8.8% (7.6%, 10%)	13% (11%, 14%)	17% (15%, 19%)	
	2010-2017 (n=1,895)	4.0% (3.2%, 5.0%)	6.2% (5.2%, 7.3%)	8.9% (7.6%, 10%)	13% (12%, 15%)	

Table 4.4 Cumulative incidence of recurrent ABC for Auckland and Wellington (2000--2017)

For Wellington and Christchurch, cumulative incidence of recurrence from EBC diagnosed 2010-2017 showed broadly similar patterns to that of Auckland and Waikato (Table 4.5).

Region	Year of early breast cancer diagnosis	2-year (95% CI)	3-year (95% CI)	5-year (95% CI)	10-year (95% CI)
Wellington	2010-2017 (n = 2,174)	4.7% (3.9%, 5.6%)	7.4% (6.3%, 8.5%)	9.8% (8.6%, 11%)	14% (12%, 15%)
Christchurch	2010-2017 (n = 2,645)	3.6% (2.9%, 4.3%)	5.6% (4.7%, 6.5%)	8.8% (7.8%, 9.9%)	13% (11%, 14%)

Table 4.5 Cumulative incidence of recurrent ABC for Wellington and Christchurch (2010-2017)

Risk of recurrence by tumour characteristics

Receptor status

As expected, the risk of relapse after EBC was greatest for HR−/HER2+ and triple negative EBC. Over time, all subtypes showed evidence of significant reductions in risk of relapse (from 2000-2009 to 2010-2017; Figure 4.5, Table 4.6).

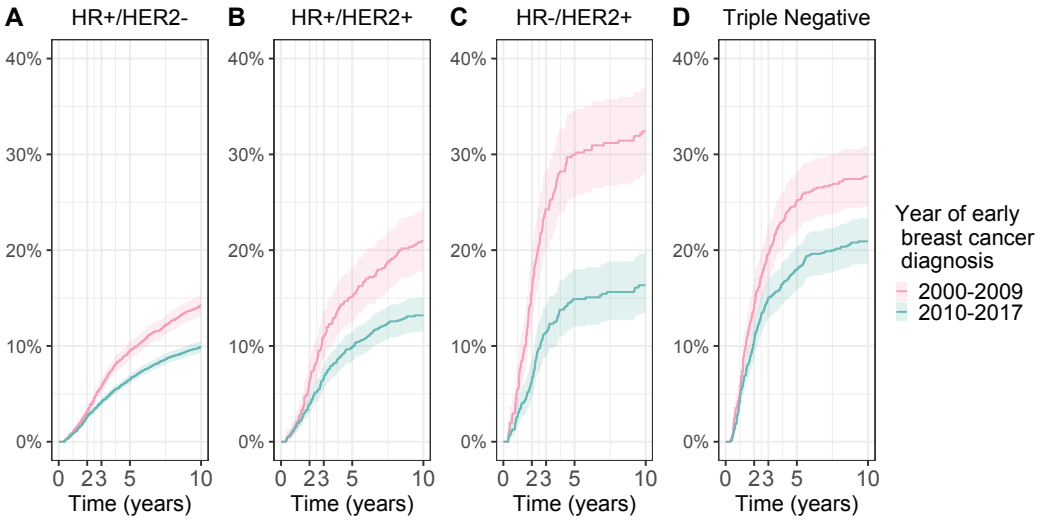

Figure 4.5 Cumulative incidence of recurrent ABC by receptor status (2000-2017)

Receptor subtype	Year	N	2-year (95% CI)	3-year (95% CI)	5-year (95% CI)	10-year (95% CI)	*p* value[1]
HR+/HER2-	**2000-2017**	**13,840**	**2.8% (2.5%, 3.0%)**	**4.6% (4.3%, 5.0%)**	**7.4% (6.9%, 7.8%)**	**11% (11%, 12%)**	**<0.001**
	2000-2009	4,025	3.1% (2.6%, 3.7%)	5.8% (5.1%, 6.5%)	9.5% (8.6%, 10%)	14% (13%, 15%)	
	2010-2017	9,815	2.6% (2.3%, 2.9%)	4.1% (3.7%, 4.5%)	6.5% (6.0%, 7.0%)	9.9% (9.3%, 11%)	
HR+/HER2+	**2000-2017**	**2,085**	**4.6% (3.7%, 5.5%)**	**7.9% (6.8%, 9.1%)**	**11% (10%, 13%)**	**16% (14%, 17%)**	**<0.001**
	2000-2009	634	6.2% (4.5%, 8.2%)	11% (8.6%, 13%)	15% (12%, 18%)	21% (18%, 24%)	
	2010-2017	1,451	3.9% (3.0%, 4.9%)	6.6% (5.4%, 8.0%)	9.9% (8.4%, 11%)	13% (11%, 15%)	
HR-/HER2+	**2000-2017**	**948**	**10% (8.5%, 12%)**	**17% (15%, 19%)**	**21% (19%, 24%)**	**23% (21%, 26%)**	**<0.001**
	2000-2009	404	16% (12%, 19%)	24% (20%, 29%)	30% (26%, 34%)	32% (28%, 37%)	
	2010-2017	544	6.4% (4.6%, 8.7%)	11% (8.9%, 14%)	15% (12%, 18%)	16% (13%, 20%)	
Triple Negative	**2000-2017**	**1,937**	**12% (11%, 14%)**	**17% (15%, 19%)**	**21% (19%, 23%)**	**24% (22%, 26%)**	**<0.001**
	2000-2009	795	14% (12%, 17%)	20% (17%, 22%)	25% (22%, 28%)	28% (25%, 31%)	
	2010-2017	1,142	11% (8.8%, 12%)	15% (13%, 17%)	18% (16%, 20%)	21% (19%, 23%)	

[1]Gray's Test

Table 4.6 Cumulative incidence of recurrent ABC by subtype (2000-2017)

A considerable reduction in the risk of relapse was observed for HR−/HER2+ subtype, with the risk halving at both shorter-term (2- and 3-year) and longer-term (5- and 10-year) timepoints. Notably, 5-year risk of relapse dropped from 30% in 2000-2009 to 15% in 2010-2017, a remarkable change that coincides with the public funding of trastuzumab (Herceptin) for EBC in NZ in mid-2007.

The funding of trastuzumab, as well as the availability of aromatase inhibitors for EBC in 2007-2008 may have contributed to the lower risk of recurrence for patients with HR+/HER2+ tumours in 2010-2017. At the same time, evidence indicates that between 2006 and 2013, patients in New Zealand with HR+/HER2+ were less likely to receive trastuzumab than patients with HER2+ enriched subtype[55]—highlighting the potential for further improvements in recurrence with focused treatment strategies for patients with HER2+ subtypes.

The risk of recurrence was lower for HR+/HER2- cancers in the later cohort (2010-2017) at both 5- and 10 years; this may be due to the 2007-2008 extension of funded aromatase inhibitors in New Zealand to EBC. International meta-analyses show aromatase inhibitors offering survival benefit superior to tamoxifen in postmenopausal women[95,96].

The significant reduction in relapse rates for early triple negative breast cancer may be associated with more effective chemotherapy regimens, including use of taxanes, and a move towards neoadjuvant chemotherapy (allowing early identification of poor responders and a switch to more aggressive treatment). Although a positive change, this still leaves a relatively high rate of recurrence, in women who tend to be younger at first diagnosis.

Tumour grade

The risk of relapse of grade 1 cancer was very low, 1.4% at 5 years and 3.3% at 10 years (Figure 4.6). Over time, both 5- and 10-year risk of recurrence for grade 2 cancer has decreased (from 10% to 6.4% at 5 years and from 16% to 10% at 10 years). Even with the more aggressive treatment usually offered to people with grade 3 tumours, grade 3 EBC maintained a steady trajectory of recurrence over time, albeit on a lower curve than previously, reaching 20% at 10 years. As grade is not alleviated by earlier diagnosis, the chance to reduce risk of relapse lies in the treatment for EBC.

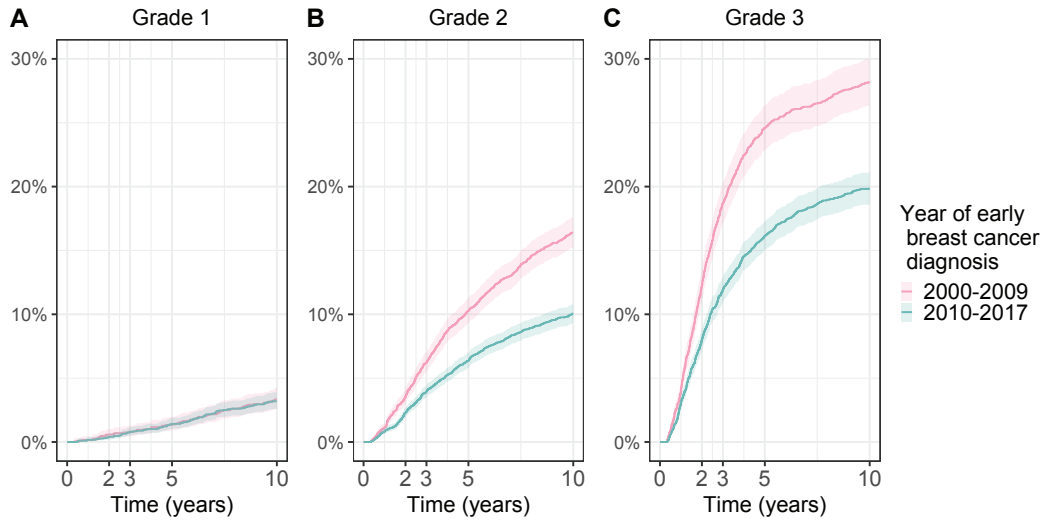

Figure 4.6 Cumulative incidence of recurrent ABC by EBC grade (2000-2017)

Stage

Relapse of stage 1 breast cancer is lower than stage 2 and 3 (Figure 4.7); in our study, 10-year recurrence for those with stage 1 EBC dropped to around 4% for women diagnosed 2010-2017; with a steady, fairly flat pattern of increase in cumulative distant recurrence. Conversely, the pattern of cumulative incidence for stage 2 recurrences show a sharper increase within 5 years of EBC diagnosis.

Although reductions in metastatic relapse were greatest for patients with stage 3 breast cancer, the risk of relapse was still very high at 5 and 10 years (26% and 32% in 2010-2017, down from 34% and 42%). Stage 3 has a much higher risk than other stages of relapse in the first 2 years (13% for EBC diagnoses 2010-2017), and the risk of relapse at 5 years was 26%.

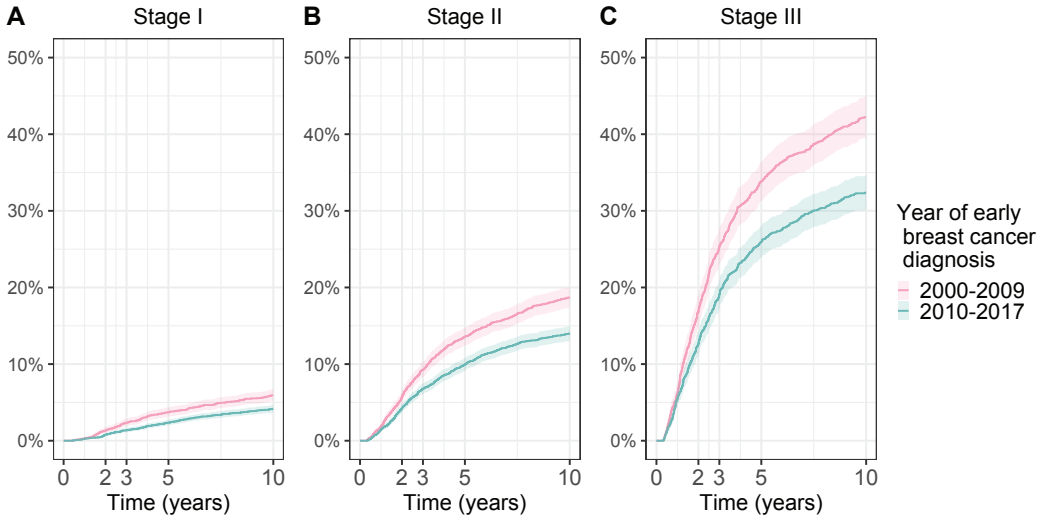

Figure 4.7 Cumulative incidence of recurrent ABC for stage I-III tumours (2000-2017)

Nodal status

Long-term risks of metastatic relapse are greater for patients with node-positive breast cancer[40,60]. We note here that in ER+ EBC, there has been no reduction in recurrence over time for women with N2 breast cancer (that is, with 4 to 9 positive axillary lymph nodes) (Figure 4.8), despite the fact that Figure 4.7 shows a decrease in recurrence for stage 3 as a whole (T1N2 and T2N2 are classified as stage 3A).

New evidence provides hope that the high risk of recurrence in N2 disease might be addressable in New Zealand and elsewhere. The international monarchE clinical trial[97], which recruited strongly in New Zealand, assessed adjuvant abemaciclib (a CDK4/6 inhibitor) in high-risk ER+ EBC. More than half of patients had 4 or more positive lymph nodes; an interim analysis showed significantly lower risk of recurrence for this group, compared with traditional endocrine therapy alone[98]. The NATALEE study of adjuvant ribociclib also included N2/N3 patients (19%)[99]; we await subgroup analyses to determine benefit for these patients.

CDK4/6 inhibitors (abemaciclib and ribociclib) have become a standard of care for high-risk[f] HR+/HER2- EBC and are funded in many countries including Australia[100] and the UK[101]. They are Medsafe-approved in New Zealand, but not Pharmac-funded for high-risk EBC (as of December 2025).

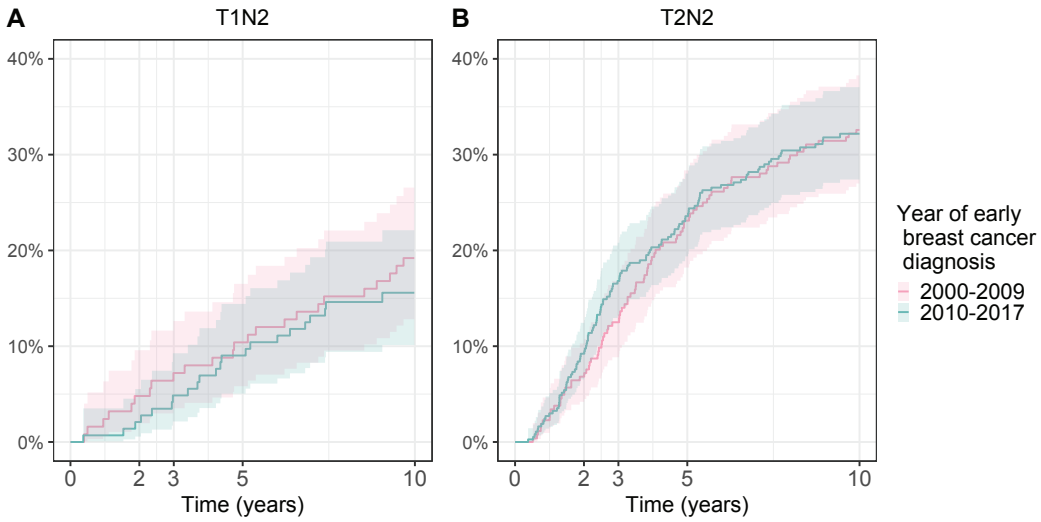

Figure 4.8 Cumulative incidence of recurrent ABC for ER+ tumours with N2 status (2000-2017)

4.2.2 What are we doing to lower recurrence?

Clinical guidelines recommend people with HR+ breast cancer to have between 5 and 10 years of adjuvant endocrine therapy (tamoxifen and/or aromatase inhibitors) to help prevent recurrence[102]. However, resource constraints may mean some centres in New Zealand struggle to follow up these patients while also providing optimal care to the newly diagnosed.

For patients, adherence to endocrine therapy can be challenging due to side effects such as menopausal symptoms, joint pain and "brain fog". New Zealand data from studies in Waikato and Christchurch demonstrate that by year 5, up to 50% of women have stopped taking their endocrine therapy, primarily due to side effects[103,104]. Sub-optimal adherence (< 80%) was associated with more than double the risk of recurrence and lower survival[103].

In the report, *30,000 voices: Informing a better future for breast cancer in Aotearoa New Zealand*, Breast Cancer Foundation NZ identified a need for greater support for women on endocrine therapy for EBC, potentially via telehealth[47]. Work is underway in this regard—myHT Guide is Breast Cancer Foundation NZ's web-based programme providing nurse-led support for HR+ EBC patients who are taking hormone therapy[105]. It helps people start, and stay on, hormone therapy after breast cancer to prevent recurrence.

4.3 Sites of metastasis at ABC diagnosis

The sites of metastasis (the different parts of the body to which breast cancer has spread) are classified as non-visceral (bone, skin and lymph nodes) or visceral (all other organs). Non-visceral metastases can be less aggressive; visceral sites are often associated with a poorer prognosis. For this reason, the number and location of sites of metastases will affect treatment recommendations.

4.3.1 Imaging used to diagnose ABC

When ABC is suspected, whether *de novo* or recurrent, imaging is used to confirm metastatic disease and to stage at (determine the extent of spread).

[f] High risk defined as lymph node involvement (excluding microscopic nodal involvement), or if no nodal involvement either tumour size >5 cm, or tumour size 2-5 cm with either grade 2 (and high genomic risk or Ki67 ≥20%) or grade 3.

ABC-NZ3 treatment guideline

- Minimal staging workup for ABC includes a history and physical examination, haematology and biochemistry tests, and imaging of chest, abdomen, pelvis and bones.
- Preferred staging modality is CT imaging of chest, abdomen and pelvis.
- A bone scan is only done for confirmation if CT imaging shows suspicious bone lesions.
- For staging of non-special type (NST) invasive breast cancers, PET-CT, if available, is preferred, instead of, and not in addition to, CT scans and bone scan.

Note: PET-CT should be used for specific indications, to characterise/clarify equivocal findings (and this is usually based on CT findings). Small bone and liver lesions might be missed on PET-CT. Low grade and lobular cancers and small <1 cm metastases have relatively high false negative rates on FDG-PET.

The distribution of imaging modalities in the Register (CT, bone scan, PET-CT and MRI) showed CT to be the most frequently used method for diagnosing ABC during 2012-2023 (data not shown). Once common, bone scans (bone scintigraphy) have fallen out of favour around the world in centres with access to more advanced imaging[106,107].

We asked clinicians about any issues they experience accessing the imaging they believe best suited to their patients (Figure 4.9).

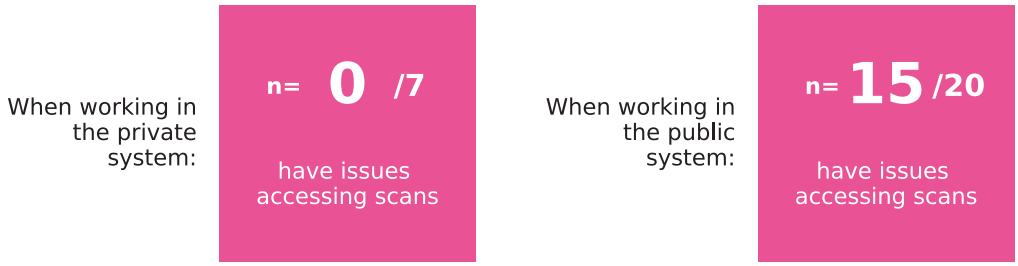

Figure 4.9 Clinicians' responses when asked: "Do you have issues accessing scans?"

Three-quarters of surveyed clinicians reported difficulty accessing scans for patients in the public health system, particularly PET-CT and MRI[4], despite the fact that international and ABC-NZ guidelines specify PET-CT as a preferred modality for otherwise equivocal diagnoses. In some cases, PET-CT scans were against hospital policy or workplace practice, or colleagues believed PET-CT was not best practice. Funding and strict eligibility criteria were also issues.

> ***There are specific criteria for publicly funded PET CT – most MBC do not meet criteria.***
>
> *- Medical oncologist*

Access to PET-CT in general is expected to improve in 2025-26 with additional machines being installed around New Zealand; whether this enables access for women with suspected ABC remains to be seen.

When clinicians were asked what imaging they would like to have available for patients, most mentioned PET-CT.

> ***PET-CT for indeterminate lesions on staging CT or bone scan at time of initial staging.***
>
> *- Medical oncologist*

> ***PET scans for select patients where this would change management.***
>
> *- Medical oncologist*

> ***Would be good to have more access to PET.***
>
> *- Radiation oncologist*

Clinicians also expressed a desire for faster access to scans and imaging reports.

4.3.2 Number of metastatic sites at diagnosis

Around a third of women in the Register had two or more metastatic sites at first metastatic diagnosis (2000-2023; Figure 4.10). CT scans have been standard of care for diagnosis and staging of ABC in New Zealand's public health system for the past 20 years. Access and diagnostic accuracy have improved over time, leading to more reliable detection of metastatic sites[108]. More than 250 combinations of "first site/s" are recorded in the Register, highlighting the variability of ABC and the potential complexity of treating these patients.

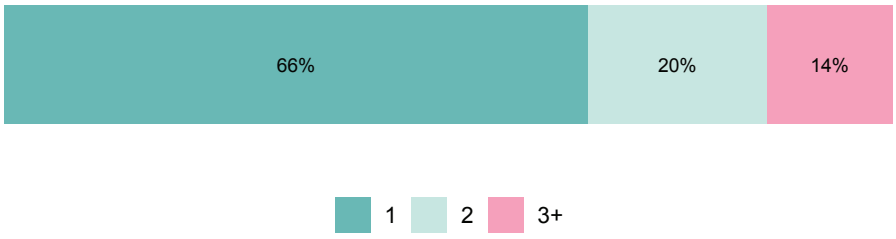

Figure 4.10 Number of metastatic sites at ABC diagnosis (2000-2023)

4.3.3 Type of metastases by tumour morphology and receptor status

At diagnosis, lobular cancers were significantly more likely than ductal cancers to present with non-visceral metastases only—mostly bone (Table 4.7 and Table 4.8). Table 4.8 also shows ductal ABC was more frequently associated with lung metastases (33% vs 9.8%), including a higher proportion of lung-only metastases (12% vs 3.5% in lobular ABC). These findings are consistent with a 2017 US study[109]; with the latter also reporting higher rates of lung and liver metastases at diagnosis with ductal cancer, independent of hormone receptor status. The US study also found that gastrointestinal tract metastases were more common in newly-diagnosed lobular ABC than in ductal ABC.

By receptor status, women with HR+ ABC were much more likely to have only non-visceral metastases (almost half of HR+/HER2- and 39% of HR+/HER2+) (Figure 4.11), whereas around 70% or more of HR− (including HR−/HER2+ and triple negative) patients had visceral metastases, which are associated with faster progression[38,110] and shorter survival (Table 2.8, see p18), at diagnosis. The most common combinations of first metastatic site by subtype are listed in Table 4.9.

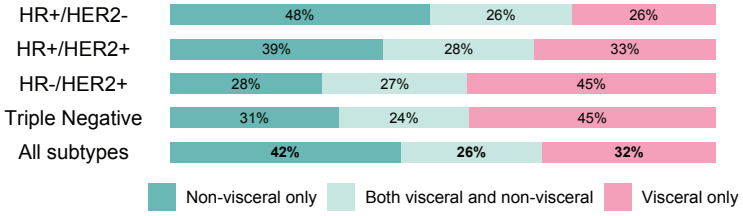

Figure 4.11 Type of metastatic sites by receptor subtype (2000-2023)

	Ductal (N=4889) % (95% CI)	Lobular (N=728) % (95% CI)	Mixed (N=61) % (95% CI)	Total (N=5678) % (95% CI)
Non-visceral only	39.9% (38.6-41.3)	58.2% (54.6-61.8)	57.4% (44.9-69.0)	42.5% (41.2-43.8)
Both visceral and non-visceral	25.9% (24.7-27.2)	19.9% (17.2-23.0)	18.0% (10.4-29.5)	25.1% (24.0-26.2)
Visceral only	34.2% (32.8-35.5)	21.8% (19.0-25.0)	24.6% (15.5-36.7)	32.5% (31.3-33.7)

Table 4.7 Type of metastatic sites by morphological subtype (2000-2023)

Group		Ductal[1]	95% CI	Lobular[1]	95% CI
Bone	All with bone involved	**51%**	50%, 53%	**70%**	66%, 73%
	Bone only	**28%**	27%, 30%	**44%**	40%, 47%
	All with both bone & lung involved	**11%**	11%, 12%	**4.4%**	3.1%, 6.3%
	All with both bone & liver involved	**10.0%**	9.2%, 11%	**10%**	8.2%, 13%
	All with both bone & lymph nodes involved	**7.7%**	7.0%, 8.5%	**6.3%**	4.7%, 8.4%
Lung	All with lung involved	**33%**	31%, 34%	**9.8%**	7.8%, 12%
	Lung only	**12%**	11%, 13%	**3.5%**	2.3%, 5.2%
	All with both lung & liver involved	**8.8%**	8.1%, 9.7%	**3.0%**	1.9%, 4.5%
	All with both lung & lymph nodes involved	**8.3%**	7.5%, 9.1%	**1.8%**	0.98%, 3.1%
Liver	All with liver involved	**25%**	23%, 26%	**19%**	17%, 22%
	Liver only	**8.2%**	7.5%, 9.1%	**6.7%**	5.1%, 8.8%
	All with both liver & lymph nodes involved	**5.3%**	4.7%, 6.0%	**2.2%**	1.3%, 3.6%
Lymph nodes	All with lymph nodes involved	**19%**	18%, 21%	**12%**	9.4%, 14%
	Lymph nodes only	**4.9%**	4.3%, 5.5%	**3.2%**	2.1%, 4.8%
Brain	All with brain involved	**6.7%**	6.0%, 7.4%	**4.4%**	3.1%, 6.3%
	Brain only	**4.2%**	3.7%, 4.8%	**3.5%**	2.3%, 5.2%
Pleura	All with pleura involved	**9.8%**	9.0%, 11%	**8.1%**	6.3%, 10%
	Pleura only	**3.6%**	3.1%, 4.2%	**1.9%**	1.1%, 3.2%

[1]Note that some percentages overlap, for example, women with bone metastases involved may include both those with bone-only disease and those with bone plus additional metastatic sites.

Table 4.8 Location and mix of first metastatic sites by lobular and ductal breast cancer (2000-2023)

Metastatic site		HR+/ HER2-[1]	95% CI	HR+/ HER2+[1]	95% CI	HR-/ HER2+[1]	95% CI	Triple Negative[1]	95% CI	All subtypes[1]
Bone	All with bone involved	**61%**	60%, 63%	**55%**	52%, 59%	**38%**	33%, 43%	**32%**	29%, 35%	**54%**
	Bone only	**36%**	34%, 38%	**29%**	26%, 32%	**16%**	13%, 20%	**16%**	13%, 19%	**30%**
	All with both bone & lung involved	**11%**	10%, 12%	**12%**	10%, 15%	**9.9%**	7.3%, 13%	**8.7%**	6.9%, 11%	**11%**
	All with bone & liver involved	**10.0%**	9.0%, 11%	**14%**	12%, 17%	**12%**	9.6%, 16%	**5.7%**	4.2%, 7.7%	**10%**
	All with both bone & lymph nodes involved	**8.2%**	7.3%, 9.2%	**7.9%**	6.2%, 10%	**6.7%**	4.6%, 9.6%	**7.0%**	5.4%, 9.1%	**7.8%**
Lung	All with lung involved	**27%**	25%, 29%	**32%**	28%, 35%	**33%**	29%, 38%	**39%**	36%, 43%	**30%**
	Lung only	**9.0%**	8.1%, 10%	**11%**	9.0%, 13%	**12%**	8.7%, 15%	**17%**	15%, 20%	**11%**
	All with both lung & liver involved	**7.0%**	6.1%, 7.9%	**11%**	8.6%, 13%	**13%**	10%, 17%	**8.5%**	6.6%, 11%	**8.3%**
	All with both lung & lymph nodes involved	**7.4%**	6.5%, 8.4%	**7.8%**	6.1%, 9.9%	**6.7%**	4.6%, 9.6%	**9.4%**	7.4%, 12%	**7.7%**
Liver	All with liver involved	**21%**	19%, 22%	**30%**	27%, 34%	**38%**	34%, 43%	**21%**	19%, 25%	**24%**
	Liver only	**6.2%**	5.4%, 7.1%	**9.8%**	7.9%, 12%	**15%**	12%, 19%	**7.5%**	5.8%, 9.7%	**7.7%**
	All with both liver & lymph nodes involved	**4.5%**	3.8%, 5.3%	**5.9%**	4.4%, 7.8%	**7.4%**	5.2%, 10%	**6.2%**	4.7%, 8.3%	**5.2%**
Lymph nodes	All with lymph nodes involved	**18%**	16%, 19%	**18%**	15%, 21%	**20%**	17%, 24%	**25%**	22%, 28%	**19%**
	Lymph nodes only	**3.8%**	3.2%, 4.5%	**4.5%**	3.2%, 6.2%	**6.7%**	4.6%, 9.6%	**7.4%**	5.7%, 9.6%	**4.7%**
Brain	All with brain involved	**4.1%**	3.4%, 4.8%	**6.0%**	4.5%, 7.9%	**12%**	9.6%, 16%	**13%**	11%, 15%	**6.3%**
	Brain only	**2.3%**	1.8%, 2.9%	**4.0%**	2.8%, 5.7%	**8.8%**	6.3%, 12%	**8.6%**	6.7%, 11%	**4.0%**
Pleura	All with pleura involved	**10%**	9.4%, 11%	**7.0%**	5.4%, 9.0%	**6.5%**	4.4%, 9.3%	**9.2%**	7.3%, 12%	**9.4%**
	Pleura only	**3.4%**	2.9%, 4.1%	**<2%**	0.98%, 2.9%	**<2%**	0.86%, 3.7%	**4.6%**	3.2%, 6.3%	**3.2%**

[1]Note that some percentages overlap, for example, women with bone metastases involved may include both those with bone-only disease and those with bone plus additional metastatic sites.

Table 4.9 Location and mix of first metastatic sites by receptor status (2000-2023)

Among HR+/HER2– patients, 61% had bone involvement as the first metastatic site, either alone or in combination with other sites. Lung metastases were present in 27% at ABC diagnosis, liver in 21%, and lymph nodes in 18%, whether as a single site or concurrent with other sites. Among HR+/HER2– patients presenting with a single metastatic site, the proportion ranged from 2.3% for brain-only metastases to 36% for bone-only metastases.

Among patients with HR+/HER2+ disease, 55% had bone metastases at the time of ABC diagnosis. Almost one-third had lung and/or liver metastases, either as single metastatic sites or in combination with other sites.

Triple negative and HR–/HER2+ ABC were more likely to present with brain metastases at first diagnosis. Approximately one-quarter of patients with triple negative disease had lymph-node metastases.

HR+ subtypes were more likely to have bone-only metastatic sites compared with HR–/HER2+ or triple negative ABC.

HER2+ subtypes were more likely to present with liver metastases as a single site compared with HER2-negative subtypes.

4.4 Diagnosis of ABC: Insights from patients

Most recurrent ABC is diagnosed when a woman experiences a symptom[111]. Similarly, a population-based NZ study reported that *de novo* ABC was more likely to be found through symptomatic pathway rather than organised screening[112]. In our survey, 51% of women were diagnosed with ABC (either *de novo* or recurrent) after reporting a symptom to their GP or specialist. with around one-third in our survey detected as a result of follow-up appointments (Figure 4.12). Almost three-quarters (73%) of women in our survey were eligible for screening through BSA—we did not gather data on how many were recurrent or *de novo*.

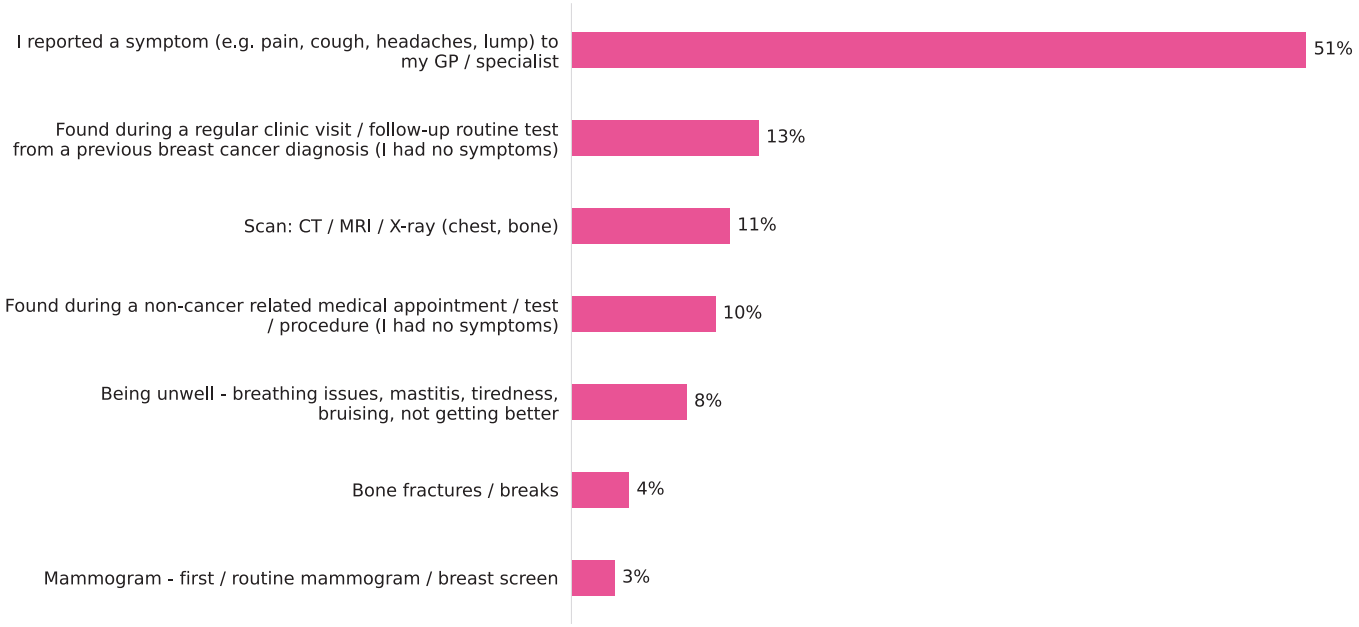

Figure 4.12 Patients' responses to the question: "How was your ABC detected?"

Although, as discussed, historical evidence has not shown a survival benefit from earlier diagnosis, delays can have a significant impact on the spread of disease and can severely impact quality of life. Examples of this were indicated by patients we surveyed who offered the following responses when asked open-ended questions about receiving their ABC diagnosis:

> ***I had a delayed diagnosis. It took 8 months of seeking medical assistance before I was diagnosed. My surgeon said I wasn't showing enough symptoms to warrant a scan (even though I was seeing him privately). I wish I had been a better advocate for myself. If I had been diagnosed earlier, I am 100% certain I would have a better quality of life now. My cancer was so advanced when they finally diagnosed [me] I was at risk of being confined to a wheelchair.***
>
> *- Patient*

> ***I found out from a spine specialist who I was referred to because I was misdiagnosed with a slipped disc. It wasn't ideal.***
>
> *- Patient*

Given the level of pain and disability that metastases can cause, education and systems should be in place to ensure that primary care clinicians, allied health professionals and non-cancer senior medical officers are aware of patterns of relapse—including that relapse is possible many years after a primary diagnosis—as well as being alert to symptoms and familiar with referral pathways.

In 2018, we recommended that anyone with a previous diagnosis of breast cancer should be fast-tracked for diagnostic imaging when presenting with symptoms of metastasis[1], but did not identify possible consistent and coordinated approaches. This remains a gap in New Zealand's approach to ABC, but one that is perhaps easier to address than the complex issue of post-EBC surveillance.

4.4.1 Hearing the news: communication of diagnosis

Most of the 105 patients surveyed felt that their ABC diagnosis was communicated in the best way possible (Figure 4.14), with the majority receiving the news face-to-face with their doctor (Figure 4.13).

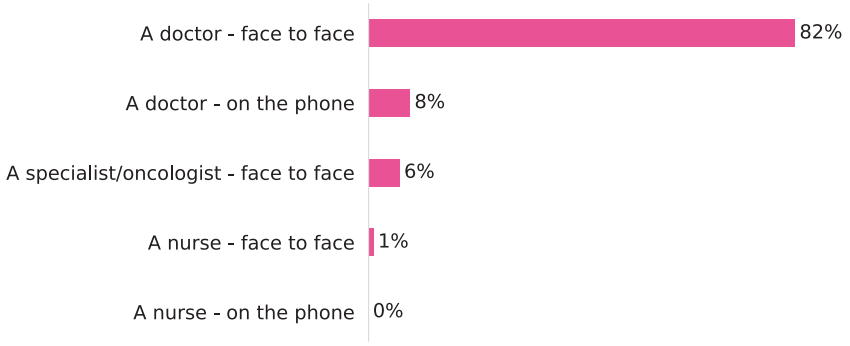

Figure 4.13 Patients' responses to the question: "Who told you that you have advanced breast cancer?"

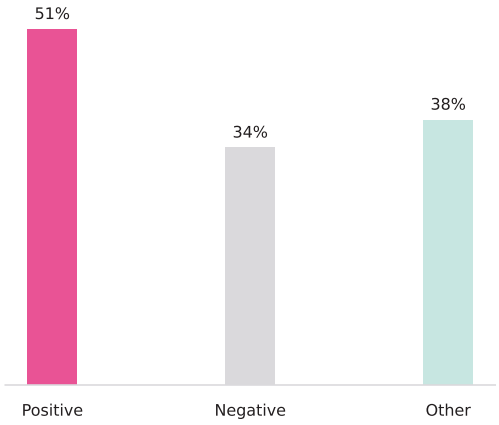

Figure 4.14 Patients' responses to an open-ended question: "How do you feel about the way you were told?"

Patients were more likely to feel positive about the way their diagnosis was communicated if they sensed sympathy and respect, and if the explanation was factual (Figure 4.15).

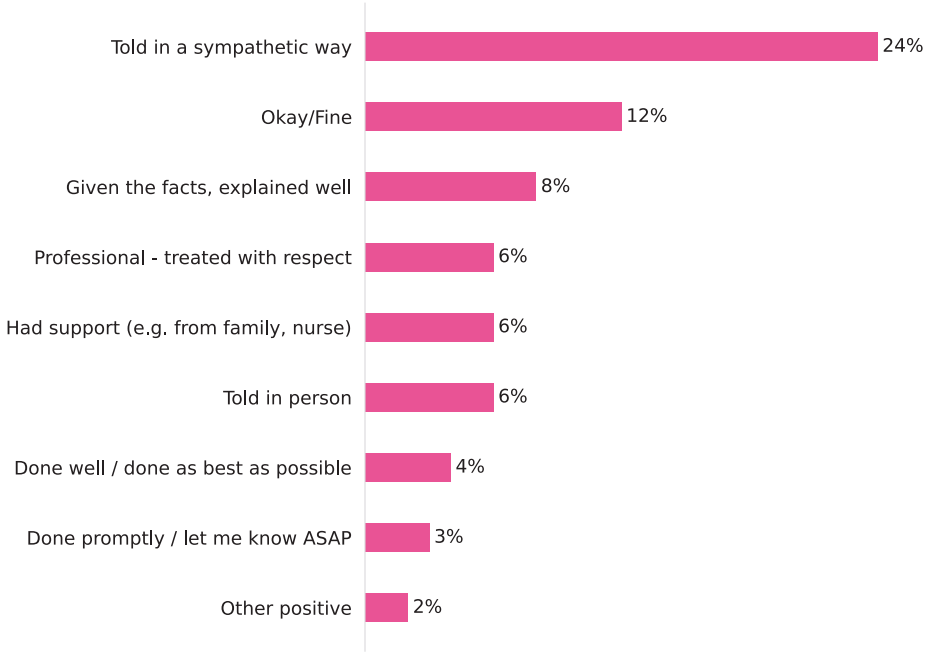

Figure 4.15 Reasons expressed by patients who felt positive about the way in which they were told they have advanced breast cancer

"I had my whānau with me and the Dr was very caring in the way the information was given. I guess it was done in a respectful way."

"It was done with compassion but stated all the facts clearly, which was good."

"I was very happy with the way my diagnosis was communicated to me. First by the GP who was very quick to arrange initial tests; then by my oncologist when there was more detail."

Around a third of patients (34%) felt that the delivery of the news was not done well (Figure 4.14). Unsympathetic or inappropriate communication was the most cited factor in a negative experience (Figure 4.16). Some patients commented about receiving a diagnosis from a technician or nurse. Still, regardless of who was delivering the news, patients viewed the experience negatively when they felt they did not receive the full facts or were provided with misinformation, or information that was not clear.

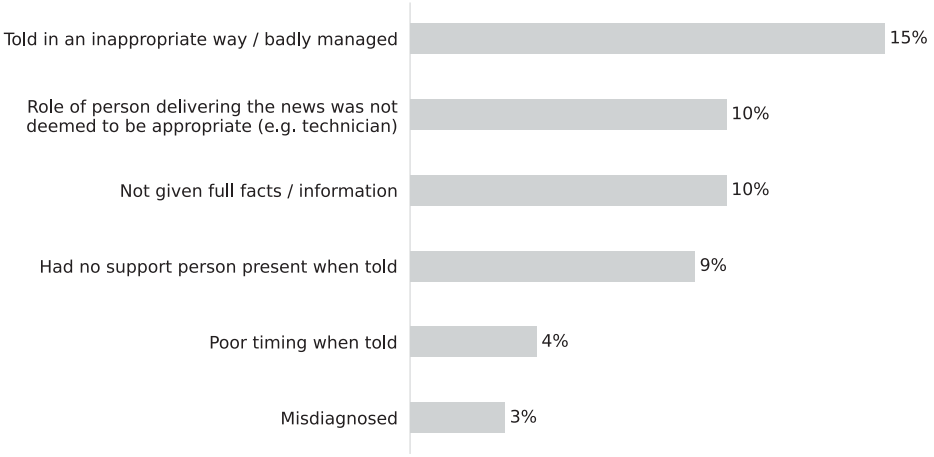

Figure 4.16 Reasons expressed by patients who had a negative experience about the way in which they were told they have advanced breast cancer

"It was horrific and badly managed and I was made to feel terrible. When I asked questions to clarify options, the responses were obscure—they brought in a nurse with the Oncologist as they stuffed up the initial diagnosis."

"…my GP read off the screen with his back to me… that it was secondary."

"It wasn't the best way. [T]he doctor never checked that I had people coming [with me] and that I didn't want my daughter (14 at the time) overhearing the news instead of me telling her what was going on."

Even when patients were given direct, accurate information in a considered approach, the time and space in which they were told of their diagnosis also can be impactful—such factors are often affected by healthcare system constraints.

> ***It was late at night. They'd found I had an unstable spine and it had spread to other places. I was in hospital then they left me to go to sleep. I was very upset and by myself.***
>
> *- Patient*

> ***The specialist and nurse were very kind and explained my diagnosis clearly but I had to request that the conversation happened in a private space and not on a shared ward. Unfortunately the only private space was more often used as staff break room so when I was getting the news that I had incurable, advanced cancer we were interrupted by other staff coming in with cups of tea—it was awful.***
>
> *- Patient*

Ultimately, the manner in which a diagnosis is delivered plays a critical role in shaping a patient's experience and sense of control.

> ***I feel as if I was launched into the car park with no support—as I left the X-ray dept I started shaking and crying but pulled myself together to walk through the main doors and drive home. The official word came much later from [my doctor] who was very good in his delivery but it was too late by then.***
>
> *- Patient*

Evidence from the UK LIMBER study[113] highlighted that impersonal or rushed communication, especially at the time of diagnosis can exacerbate feelings of fear, uncertainty, and loss of control. From the outset, this can influence a patient's ability to process information, make informed decisions, and engage actively in their care. This becomes especially important when patients are required to navigate treatment choices within a short timeframe.

In summary

- According to our survey, 51% of women were diagnosed with ABC (either *de novo* or recurrent) after reporting a symptom to their GP or specialist. Surveillance for metastases after EBC is limited; there is a need for updated evidence to support practice change.
- This is the first report of near-national recurrence rates after EBC diagnosis. Cumulative incidence of distant recurrence differed between two ABC diagnosis cohorts — 2000–2009 and 2010–2017 — with women in the later cohort a third less likely to relapse than those in the earlier cohort.
- The 5- and 10-year risk of distant recurrence for women diagnosed 2000-2017 was 9.8% and 13%, respectively.
- Wāhine Māori had a higher incidence of relapse at 10-years than European women (2000-2009), but by 2010–2017 risk of relapse was comparable.
- Pacific women consistently experienced higher incidence of relapse than European women, and reductions over time did not fully close this gap.
- Women aged under 45 at EBC diagnosis had higher risk of distant recurrence compared to women aged 45-69 (BSA screening age).
- The 5-year risk of relapse for HR−/HER2+- patients halved from 2000-2009 to 2010-2017.
- There were no significant differences between two time cohorts (2000-2009 and 2010-2017) for the risk of distant recurrence for women with smaller (T1) or larger (T2) tumours when 4–9 lymph nodes (N2) were involved.
- More than 250 combinations of "first site/s of metastasis" are recorded in the Register, highlighting the variability of ABC. Bone was the most common site among women with HR+ ABC with single-site metastasis. Women with HR− subtypes had more than one common single metastatic site: liver, lung, bone for HR−/HER2+ and lung, bone for triple negative.
- One-third of patients in our survey said their ABC diagnosis was poorly communicated by their clinical team.

5. Optimal Treatment for ABC

The Lancet Commission defines optimal treatment for ABC as "individualised management of metastatic breast cancer with equitable access to evidence-based therapies"[2] (p18) and emphasises the importance of patients having the opportunity to receive recommended treatments, particularly given the survival gains offered by newer therapies.

Thanks in no small part to the advocacy efforts of patients, NGOs and clinicians, New Zealanders with ABC now benefit from access to CDK4/6 inhibitors in ER+/HER2- disease, immune checkpoint inhibition (ICI) / immunotherapy in PD-L1-expressing triple negative disease, and several therapies in HER2+ disease.

At this stage it is too soon to report on NZ outcomes of immunotherapy (pembrolizumab funded from October 2024), trastuzumab deruxtecan / T-DxD (funded from 1 January 2025) or ribociclib (funded from 2024). However, this report includes the first analysis of national treatment and outcomes with CDK4/6 inhibitors in New Zealand.

Specific therapies aside, the other key aspect of optimal treatment, according to the Lancet Commission, is "equitable access". Recent reports show that New Zealand's health system continues to face capacity and staffing constraints—including a near doubling of adults reporting long wait times to see their GP, and a tripling in the number of people waiting more than four months to see a specialist between 2020 and 2023[114]. These system pressures, though not cancer-specific, may contribute to delays in cancer diagnoses and treatment. The report highlights that wait times have a greater impact on women[114], and so are relevant to breast cancer. For ABC patients with rapidly progressing subtypes, including triple negative disease who have a median survival of 6.7 months (see *section 2.4*), any delay in treatment initiation may have serious clinical consequences, underscoring the need to address these system-level issues.

"Equitable access" can also mean not only that all patients have access to the same drugs, but to the same level of specialist expertise and encouragement in recommending treatment, and the same support to stay on treatment. It could also mean all patients having a level of understanding that enables them to accept or reject those recommendations.

Equitable treatment for ABC is therefore informed not only by availability of drugs or other therapies and ease of access to them, but also by access to supportive care delivered by nurses and allied health professionals. It will also be informed by the specialist's (usually a medical or radiation oncologist's) knowledge, experience, attitudes, beliefs and biases, whether conscious or unconscious[115].

The following important aspects of treatment access are discussed in this section:

- Metastatic biopsies: clinician access and HER2+ tumour discordance rates.
- Number of lines of treatment: impact on survival and describe patient and tumour characteristics across lines.
- Endocrine therapy and CDK 4/6 inhibitors: extent of endocrine therapy use, associated survival, and the first national analysis of palbociclib use and outcomes.
- First systemic therapy for HR+/HER2- and HER2+: a brief review of recent international evidence and guidelines, highlighting the prognostic impact of initial treatment choice.

5.1 Metastatic biopsies guiding treatment decisions

ABC-NZ3 treatment guideline

Biological markers (especially ER, PR and HER2) should be reassessed at least once in the metastatic setting, if clinically feasible.

International and ABC-NZ guidelines recommend that a biopsy of a metastatic lesion should be performed, if clinically possible, to confirm presence of metastases. Biomarkers used to guide treatment (at a minimum, ER/PR and HER2) should be assessed to determine guideline-appropriate treatment most likely to be effective and avoid unnecessary toxicity or futile treatment.

In our small survey, most clinicians indicated they find it easy to access metastatic biopsies in both the private and public sector (Figure 5.1)[4].

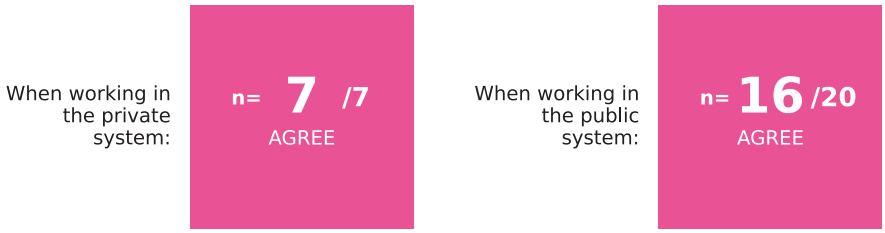

Figure 5.1 Clinicians' responses to the question: To what extent do you agree with the following statement: It is easy for me to access metastatic biopsies?

A meta-analysis evaluated discordance rates for ER, PR, and HER2 receptors in a total of 9,926 tumours across 48 studies and reported pooled discordance proportions of 20%, 33%, and 8%, respectively[116]. Additionally, a review of studies reported that for estrogen receptors, the direction of change (positive-to-negative, or negative-to-positive) was similar (approximately 20% in each direction, with discordance being most common in bone metastases, where there is greater risk of false negatives)[117]. Conversely, a meta-analysis and review identified HER2 status was more likely to turn from positive-to-negative than the other direction (21% vs 10%)[118].

Tumour discordance means that the receptor status of a tumour can change over time, most commonly when cancer progresses from an EBC diagnosis to ABC. For example, a cancer that was HR+ or HER2+ at EBC diagnosis may no longer have those features at ABC diagnosis.

In our cohort of patients, we also found a similar pattern of HER2 discordance to that of other studies[118], with HER2 status more likely to turn from positive-to-negative (Table 5.1). Of the 458 women in the Register with HER2 status recorded for both primary and metastatic biopsies, 24% moved from positive-to-negative, and 7.6% moved from negative-to-positive (Table 5.1). We do not have data for HR+ discordance.

HER2 status at metastatic biopsy			
	Negative (N = 363)	**Positive (N = 95)**	**Overall (N = 458)[1]**
HER2 status at EBC diagnosis			
Negative	342 (92%)	28 (7.6%)	370 (100%)
Positive	21 (24%)	67 (76%)	88 (100%)

[1]N%
Pink-shaded cell shows a change from negative-to-positive
Green-shaded cell shows a change from positive-to-negative

Table 5.1 HER2 status at early breast cancer and metastatic biopsy

Although receptor positivity gain is less common than positivity loss, the possibility of changing to a more treatable subtype—including the chance for triple negative patients to convert to at least HER2-low status and thereby become eligible for additional therapies such as trastuzumab deruxtecan (T-DXd; currently self-funded for HER2-low)—is an important reason to perform metastatic biopsies. Synchronous metastases (those occurring nearer to the primary diagnosis) tend to be more genomically similar to the primary tumour[119]. However, guidelines do not explicitly exempt synchronous metastases from recommendations. The emphasis is on confirming metastatic disease and reassessing biology when a metastatic lesion is identified and accessible, regardless of timing.

In future, access to therapies that target specific protein expression or tumour mutations will likely expand the range of biomarkers that should inform optimal treatment of ABC in future. This is particularly important at first metastatic diagnosis when decisions are made on first-line treatment[25,120].

5.2 Lines of systemic therapy

Significant improvements in median overall survival for ABC are achieved with each added systemic treatment line. Even one line of systemic treatment significantly prolongs survival (Table 5.3, see p56).

ABC patients typically receive multiple sequential lines of systemic therapy over the course of their disease. Patterns of care show that most patients start with first-line systemic therapy and then move to second and third lines as disease progression occurs or resistance develops.

Not all patients receive every line of therapy, and reported proportions progressing through successive lines can vary between real-world cohorts, reflecting differences in patient populations, data collection methods, and how treatment lines are defined[121,122].

While it is common (though not universal) for patients to receive less benefit from each subsequent line of therapy[121], overall survival (OS) for later lines of therapy can be long. A recent Dutch study reported 12.8 months OS for fourth-line treatment in HR+/HER2+ ABC, to the researchers' surprise[122].

In this section, we review systemic therapy by the *number of lines* patients received, with analyses of survival and patient/tumour profiles. Overall data on the proportion of patients receiving any systemic therapy, with demographics and tumour characteristics, are provided in *section 6.2.2*.

For ABC patients diagnosed 2015-2022 who had any systemic therapy, the median number of treatment lines was 2 (Table 5.2). The median number of treatments reported in *I'm still here* was also 2. A study of Auckland patients diagnosed 2013-2015 by Ang et al. (2022)[123] found the same median.

Medians do not vary by ethnicity, age, region, or receptor status.

	All patients	Excl. patients age ≥80	All ages, excl. patients without recorded systemic therapy
Median (first, third quartile)	**N = 3,085**	**N = 2,558**	**N = 2,532**
Total	2 (1, 3)	2 (1, 3)	2 (1, 4)
(a) Ethnicity			
Māori	2 (1, 3)	2 (1, 3)	2 (1, 3)
Pacific	2 (1, 3)	2 (1, 3)	2 (1, 4)
Asian	2 (1, 3)	2 (1, 3)	2 (1, 3)
European/Other	2 (1, 3)	2 (1, 4)	2 (1, 4)
(b) Region			
Auckland	2 (1, 4)	2 (1, 4)	2 (1, 4)
Waikato	2 (1, 4)	2 (1, 4)	2 (1, 4)
Wellington	1 (1, 2)	2 (1, 3)	2 (1, 3)
Christchurch	1 (1, 3)	2 (1, 3)	2 (1, 3)
Other DHBs (from 2020)	2 (1, 3)	2 (1, 3)	2 (1, 3)
(c) Receptor status			
HR+/HER2-	2 (1, 3)	2 (1, 4)	2 (1, 4)
HR+/HER2+	2 (1, 4)	3 (1, 4)	3 (2, 4)
HR-/HER2+	1 (1, 2)	1 (1, 2)	2 (1, 2)
Triple Negative	1 (0, 2)	1 (0, 2)	2 (1, 2)
(d) Age at metastatic diagnosis			
<45	2 (1, 4)	2 (1, 4)	3 (2, 4)
45-54	2 (1, 4)	2 (1, 4)	3 (1, 4)
55-69	2 (1, 3)	2 (1, 3)	2 (1, 4)
70+	1 (0, 2)	1 (1, 3)	2 (1, 3)

Table 5.2 Median number of treatment lines for ABC patients (2015-2022)

5.2.1 Survival by lines of systemic therapy

Survival analyses in this section include patients diagnosed between 2015 and 2020 who received at least one line of systemic treatment. Patients diagnosed after 2020 were excluded as they do not have sufficient follow-up to support estimation of 5-year survival.

Five-year survival for patients having 4 or more lines of systemic therapy was 37%, a big jump on the 23% survival for those having 2-3 lines. Survival is significantly increased with each added treatment line.

	Median OS, months (95% CI)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)
All lines	**26 (25, 29)**	**73% (71, 75)**	**54% (51, 56)**	**24% (22, 26)**
Lines				
1	11 (10, 13)	48% (44, 52)	30% (27, 34)	15% (13, 19)
2-3	24 (22, 26)	77% (74, 81)	51% (47, 55)	23% (20, 27)
4+	49 (46, 54)	99% (98, 100)	87% (84, 90)	37% (33, 42)

Table 5.3 Overall survival (OS) by number of systemic therapy lines (2015-2020)

Survival by number of lines of therapy and receptor status

Among patients with HR+/HER2−, HR+/HER2+, and triple negative subtypes, receipt of additional lines of systemic treatment was associated with improved survival. Yet, for HR−/HER2+ subtypes, there were no significant differences in survival with additional lines of systemic therapy. This may reflect patients with less aggressive disease living long enough to receive additional lines of therapy.

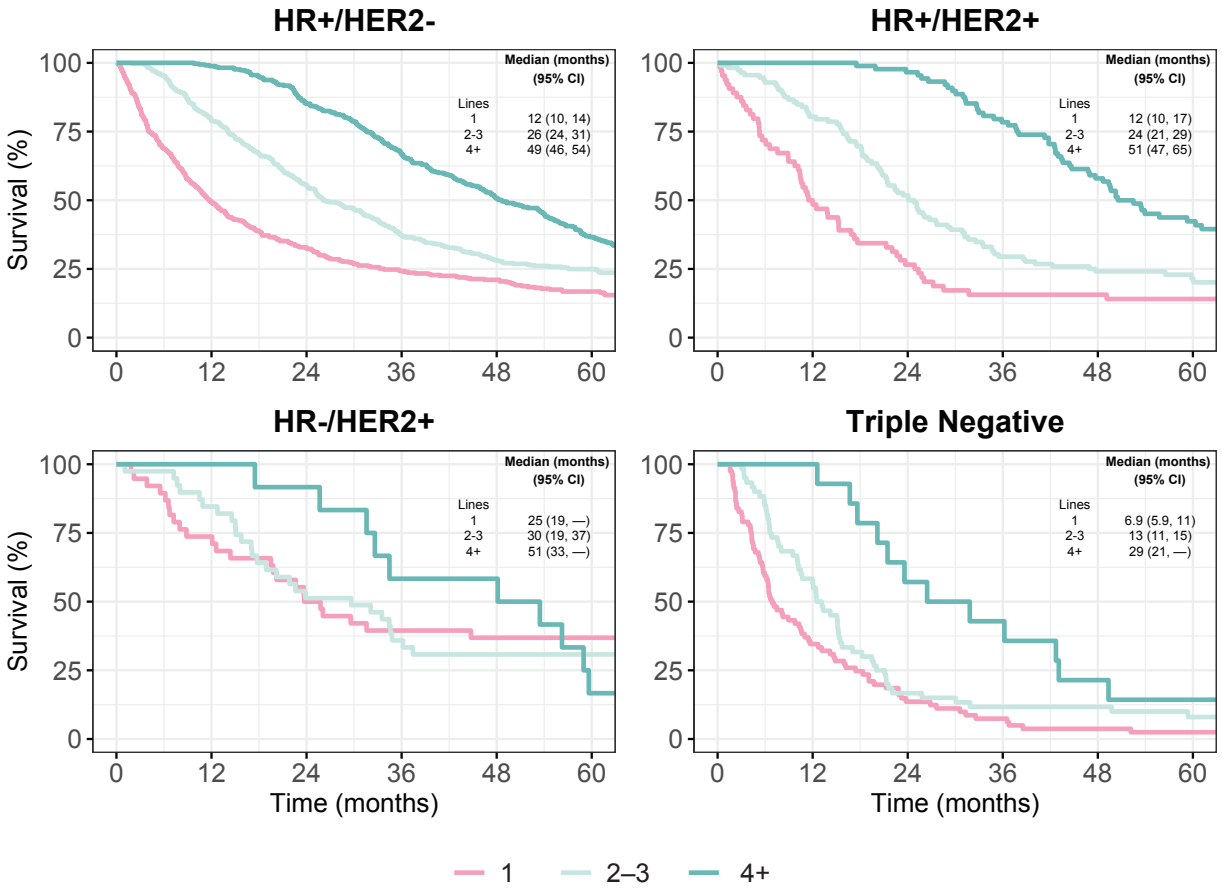

Figure 5.2 Overall survival by number of systemic therapy lines and receptor subtype (2015-2020)

5.2.2 Lines of systemic therapy by patient and tumour characteristics

Tables/figures in this section include only those patients diagnosed between 2015 and 2022 who received at least one line of systemic treatment (treatment records for these patients were obtained up to January 2025); patients who received no systemic therapy are excluded. Data include newer drugs that have become available publicly within this time period, including pertuzumab for triple negative and trastuzumab emtansine (T-DM1) for HER2+ ABC (Jan 2017 and Dec 2019, respectively) and palbociclib for HR+ ABC from 2020.

Ethnicity

The proportions of women receiving 1 line, 2-3 lines, and 4 or more lines of systemic therapy were similar across ethnic groups, with no statistically significant differences observed (Figure 5.3). Around a quarter of women were treated with 4 or more lines of systemic therapy.

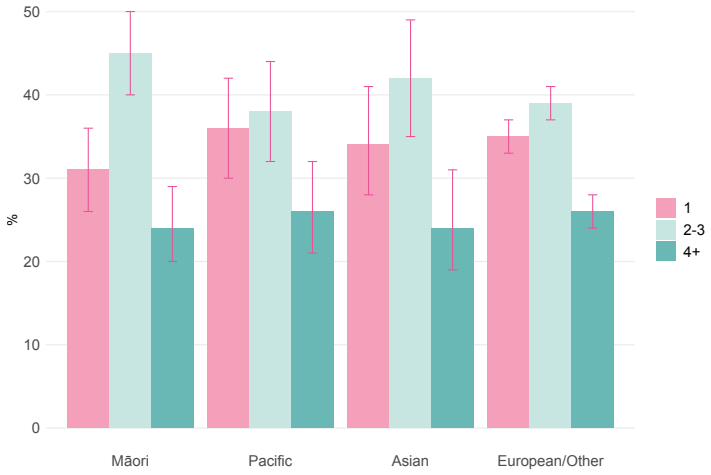

Figure 5.3 Number of treatment lines by ethnicity for all patients receiving any systemic therapy (2015-2022)

Age

Of those women who were treated with systemic therapy, the majority of women aged under 70 years received 2-3 lines of systemic treatment, with proportions around 40% to 42% for those aged <45 years, 45-54 years and 55-69 years. Of those aged 70+, almost half received 1 line of treatment (46%). Around 17% of women aged 70+ years received 4 or more lines of systemic treatment. Corresponding proportions in those aged <45 years, 45-54 years and 55-69 years were 34%, 35% and 26%, respectively (Figure 5.4).

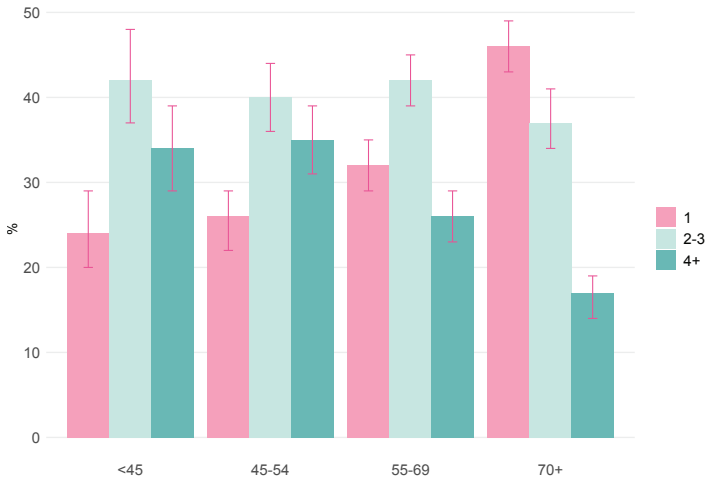

Figure 5.4 Number of systemic treatment lines by age at ABC diagnosis, for all patients receiving any systemic therapy (2015-2022)

Region

The percentage of ABC women in Wellington and Christchurch who received 4 or more lines of systemic therapy was relatively low, at approximately 17% and 20%, respectively. In contrast, the corresponding proportions in Auckland and Waikato were substantially higher, at around 30% and 31% (Figure 5.5).

Figure 5.5 Number of systemic treatment lines by region, for all patients receiving any systemic therapy (2015-2022)

Receptor status

The proportion of women with triple negative disease who received 2-3 lines of systemic therapy was relatively high, at approximately 41% (Figure 5.6). This is encouraging, and in future, with pembrolizumab now funded for these patients whose cancer is positive for PD-L1, we might expect to see longer duration of first-line therapy with longer progression free survival[124], and more lines offered—hopefully resulting in improved survival.

For women with HR−/HER2+ subtypes, those receiving 4 or more lines of treatment was relatively low (12%). Recent funding of trastuzumab deruxtecan offers more treatment options, allowing additional therapy lines and potential survival benefits in future cohorts—effects not observed in current data (Figure 5.2, p.57).

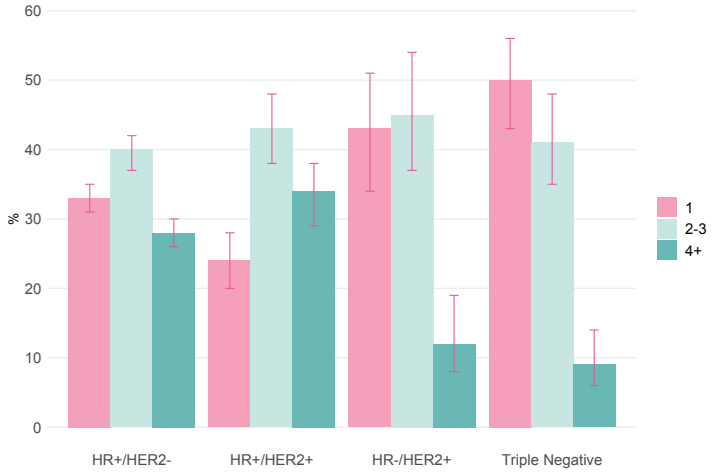

Figure 5.6 Number of systemic treatment lines by receptor status, for all patients receiving any systemic therapy (2015-2022)

5.3 Endocrine therapy

Endocrine therapy is the preferred therapy for HR+ ABC, with the addition of CDK4/6 inhibitors in HR+/HER2−. With the exception of fulvestrant, there are no restrictions on prescribing of currently funded endocrine therapy; patients may cycle through multiple lines of traditional endocrine therapy (aromatase inhibitors and tamoxifen) over the course of their ABC.

ABC-NZ3 treatment guideline

Options for treatment of ER+ disease beyond second line include single agents not previously used (non-steroidal and steroidal aromatase inhibitor, tamoxifen, fulvestrant, megesterol acetate, low dose oestrogen).

Challenging a patient with an agent on which the disease previously progressed, after an initial response, is occasionally considered, but there are no robust data to support this approach.

In this section we investigate how many lines of endocrine therapy women with HR+ ABC (HR+/HER2− or HR+/HER2+) received, and survival by number of lines.

Tables and figures in this section report the number of lines for those patients who received endocrine therapy and exclude patients who did not receive endocrine therapy. All tables and figures reporting lines of endocrine therapy include CDK4/6 inhibitors, unless otherwise stated.

Survival by lines of endocrine therapy

Survival for patients having 2 or more lines of endocrine therapy was very good, with a median of 48 months and 38% surviving 5 years from ABC diagnosis (Figure 5.7 and Table 5.4).

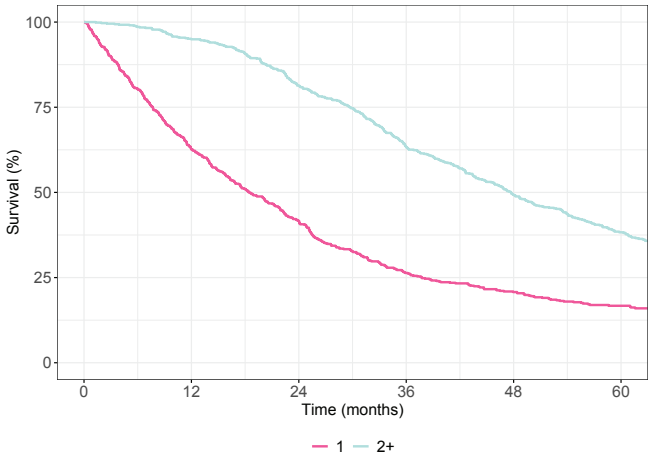

Figure 5.7 Overall survival by treatment lines of endocrine therapy in all HR+ ABC patients

	Median OS, months (95% CI)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)
All HR+ patients	**33 (31, 35)**	**79% (77, 82)**	**62% (60, 65)**	**28% (25, 31)**
Lines				
1	18 (16, 22)	63% (59, 67)	42% (38, 46)	17% (14, 20)
2+	48 (44, 51)	95% (93, 97)	81% (78, 84)	38% (35, 42)

Table 5.4 Overall survival (OS) by lines of endocrine treatment for all HR+ ABC patients (2015-2020)

5.3.1 Lines of endocrine therapy by patient and tumour characteristics

Of the 1,861 women who received endocrine therapy for their ABC (2015-2022), approximately half received 1 line, and half had 2 or more lines (data not shown); there were no differences in proportions across all regions.

Ethnicity

No significant differences were observed in the proportions of women receiving 1 line and 2 or more lines of endocrine therapy across ethnic groups (Figure 5.8).

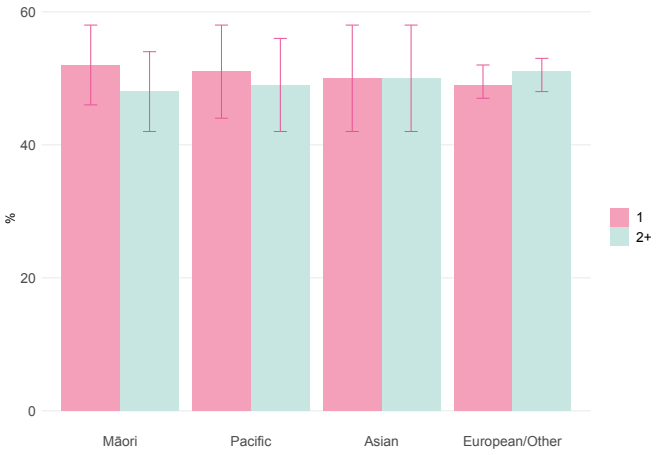

Figure 5.8 Lines of endocrine therapy by ethnicity (2015-2022)

Survival by endocrine therapy lines and ethnicity

HR+ ABC patients in all ethnic groups had longer overall survival with more lines of endocrine therapy (Figure 5.9).

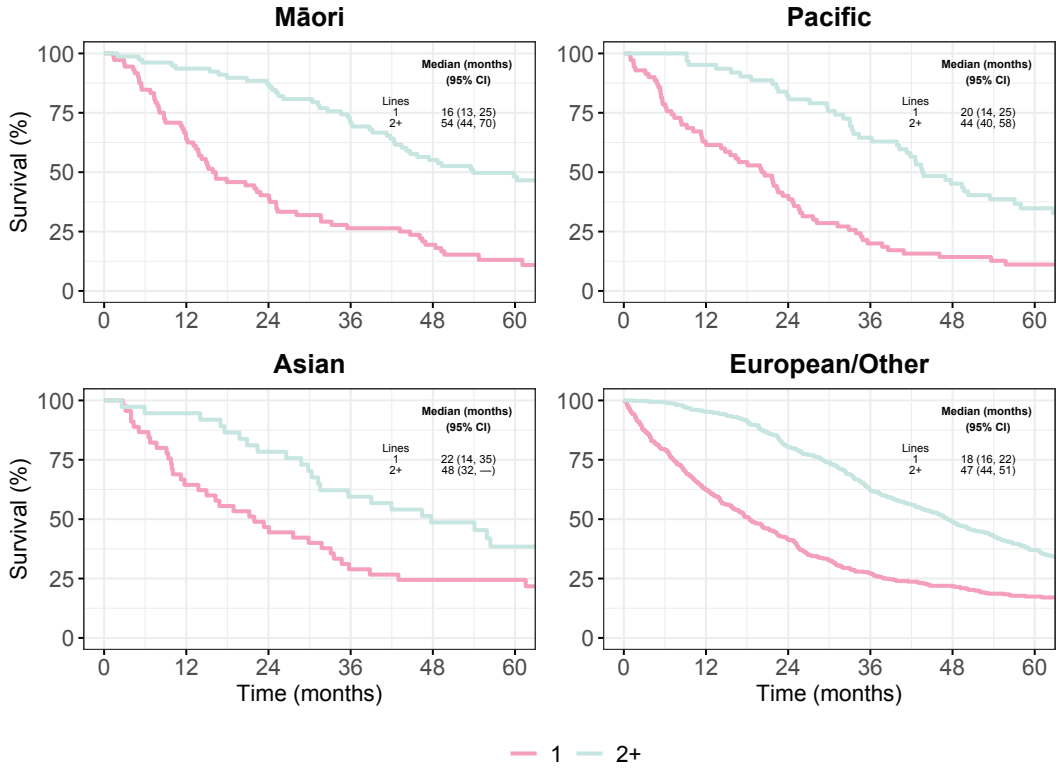

Figure 5.9 Overall survival by lines of endocrine therapy for all HR+ patients by ethnicity

Age

The proportion of women receiving 1 line or 2 or more lines of endocrine therapy did not differ significantly by age group (Figure 5.10).

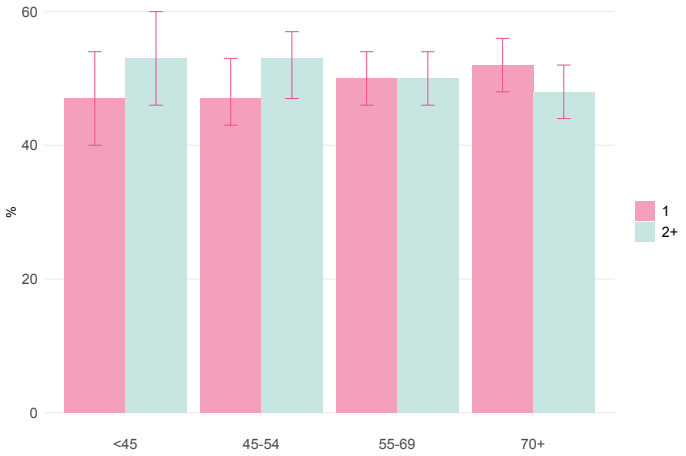

Figure 5.10 Lines of endocrine therapy by age at ABC diagnosis, for HR+ patients (2015-2022)

Survival by endocrine therapy lines and age

Women receiving 2 or more lines of endocrine therapy (vs 1 line) had longer survival across all age groups: <45 years (median 59 vs 24 months), 45–54 years (median 50 vs 26 months), 55–69 years (median 48 vs 18 months), and ≥70 years (median 42 vs 14 months; Figure 5.11.

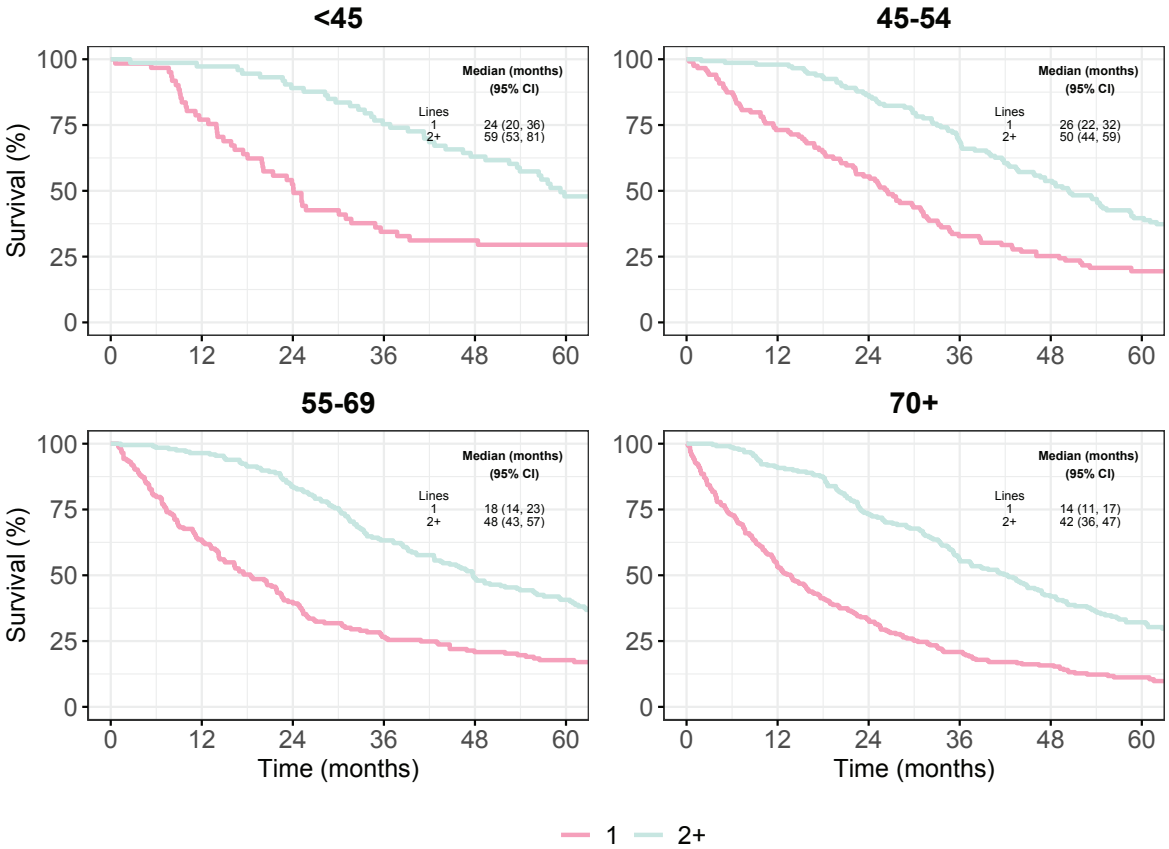

Figure 5.11 Overall survival by number of endocrine therapy lines and age at ABC diagnosis, for HR+ patients (2015-2020)

Receptor status

Among patients with HR+ ABC receiving endocrine therapy, approximately 53% of those with HR+/HER2− disease received 2 or more lines of endocrine therapy, compared with 36% of those with HR+/HER2+ disease (Figure 5.12). The reasons why HR+/HER2+ patients receive fewer lines of endocrine therapy are not fully understood. While HER2-directed therapies are available to this group, resistance mechanisms, disease progression, treatment sequencing, clinician decision-making, and patient preferences may all affect the use of endocrine therapy. Real-world data from the SystHERs registry show heterogeneous treatment across lines for HR+/HER2+ ABC patients, with variable use of endocrine therapy alongside the more commonly used HER2-directed therapy and chemotherapy[125]. Further, data from the Netherlands' SONABRE registry show endocrine therapy use decreases with later lines of treatment in HR+/HER2+ ABC[122]. Additional studies are warranted to determine why two or more lines of endocrine therapy are less commonly used among HR+/HER2+ than HR+/HER2− patients.

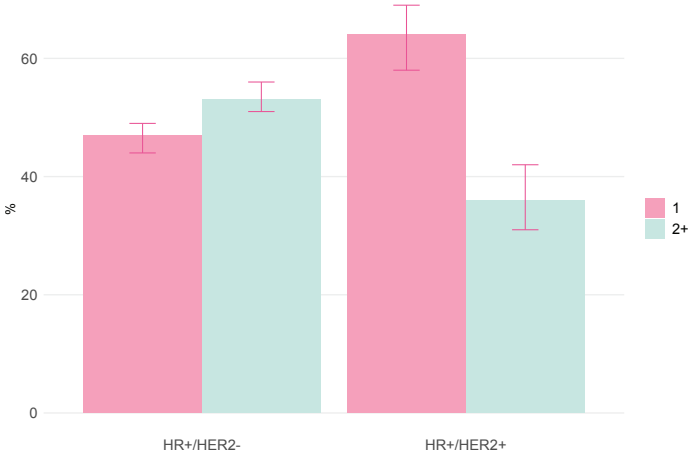

Figure 5.12 Lines of endocrine therapy by receptor status (2015-2022)

Survival by endocrine therapy lines and receptor status

Survival was longer with more lines of endocrine therapy in both subgroups (Figure 5.13); HR+/HER2−: median 17 months (1 line) vs 47 months (2 or more lines); HR+/HER2+: median 25 months (1 line) vs 50 months (2 or more lines).

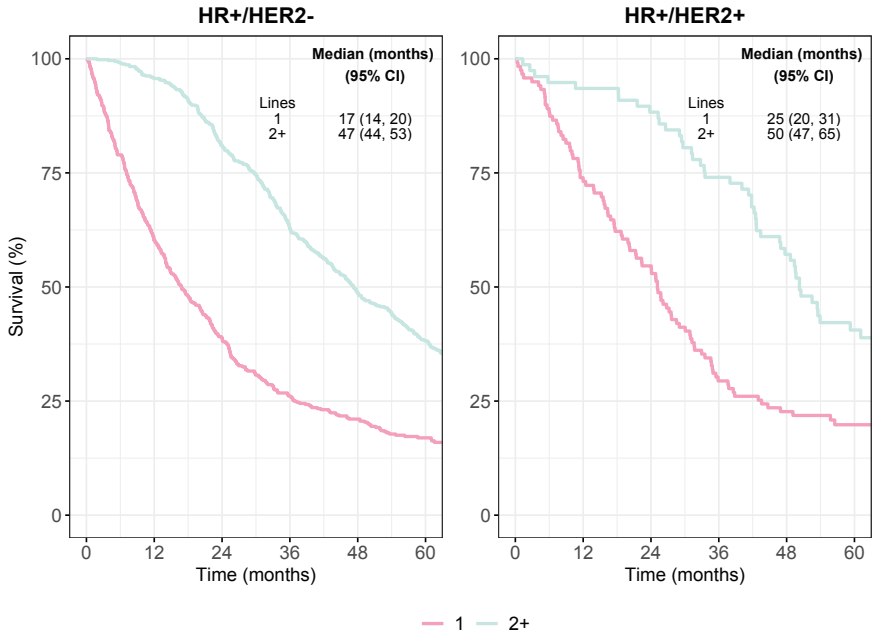

Figure 5.13 Overall survival by number of endocrine therapy lines and receptor status, HR+ patients (2015-2020)

5.4 CDK4/6 inhibitors

ABC-NZ3 treatment guideline

A CDK4/6 inhibitor combined with endocrine therapy is the standard of care for patients with ER+/HER2- ABC, since it very substantially increases OS, as well as PFS and either maintains or improves QoL [quality of life].

In view of the substantial survival benefit seen with endocrine therapy + CDK4/6 inhibitors in first line, never seen before with chemotherapy, this combination should be considered the standard of care for 1st line therapy of ER+/HER2- ABC.

This section includes the first analysis of national treatment and outcomes with palbociclib, the first CDK4/6 inhibitor to be funded by Pharmac in New Zealand. A total of 936 women with HR+/HER2− ABC diagnosed between 2015 and 2023 have received palbociclib (data not shown). Of these, 66 patients self-funded prior to the pharmaceutical company making palbociclib accessible at no cost to patients from January 2020 until public funding started in April 2020.

The following tables report uptake of palbociclib since January 2020.

	Palbo N = 528 (71%)[1]	No Palbo N = 212 (29%)[1]	Overall[2] N = 740 (100%)[1]
Ethnicity			
Māori	92 (78%)	26 (22%)	118 (100%)
Pacific	42 (67%)	21 (33%)	63 (100%)
Asian	38 (73%)	14 (27%)	52 (100%)
European/Other	356 (70%)	151 (30%)	507 (100%)
Age			
<45	50 (78%)	14 (22%)	64 (100%)
45-54	102 (81%)	24 (19%)	126 (100%)
55-69	192 (81%)	46 (19%)	238 (100%)
70+	184 (59%)	128 (41%)	312 (100%)

[1]n (%). Palbo=Palbociclib

[2]HR+/HER2- patients diagnosed between 2020 and 2022 and receiving ≥1 line of endocrine therapy.

Table 5.5 HR+/HER2- ABC patients diagnosed between 01/2020 and 12/2022 receiving palbociclib in any line.

The use of CDK4/6 inhibition appears well-established in New Zealand, with 71% of patients in our cohort diagnosed between January 2020 and December 2022 having palbociclib in either first or later line (Table 5.5). The number of women receiving palbociclib within the first 2 years of funding is likely to be more however, as these numbers do not include women diagnosed prior to January 2020 who would have been eligible to receive palbociclib. This figure compares favourably with overseas studies: for example, in the Netherlands' SONABRE register study, 54% were treated with CDK4/6 inhibitors within a 3-year period shortly after CDK4/6 inhibitors became widely available in the country[48].

By ethnicity, approximately 78% of wāhine Māori and 67% of Pacific women received palbociclib (Table 5.5). By age, women aged 70 and over were less likely to have palbociclib than other age groups, probably due to concerns about side effects.

5.4.1 Survival with palbociclib

HR+/HER2− patients treated with palbociclib between January 2020 and December 2022 had a median OS of 42 months (Table 5.6).

	Median OS, months (95% CI)	1 year (95% CI)	2 years (95% CI)
Overall	42 (37, 46)	87% (84, 90)	71% (68, 75)

Table 5.6 ABC overall survival (OS) in patients treated with palbociclib (Diagnoses from Jan 2020)

5.5 Guideline-informed first-line management

Studies show that for patients who "do not receive guideline-directed care in the earliest indicated setting, the benefit gained from subsequent LOT [lines of treatment] may be diminished or they may not receive a subsequent LOT"[121] (p420).

5.5.1 First-line treatment for HR+/HER2− ABC

Endocrine therapy (which can include concomitant CDK4/6 inhibitors) is the preferred treatment for nearly all HR+/HER2− ABC patients, due to better survival, even for women with visceral metastases, and reduced toxicity compared with chemotherapy.

ABC-NZ3 treatment guideline

Endocrine therapy is the preferred option for HR+ disease, even in the presence of visceral disease, unless there is visceral crisis, for pre- and perimenopausal women with ovarian function suppression/ablation (OFS/OFA), men (preferably with an LHRH [luteinising hormone–releasing hormone] agonist) and postmenopausal women.

Lobbezoo et al. (2016)[126], reported that ER+/HER2− ABC patients had twice the risk of dying with first-line chemotherapy versus endocrine therapy (adjusted hazard ratio 2.24).

The addition of palbociclib to endocrine therapy (letrozole) in first-line significantly improved progression-free survival (PFS), compared with letrozole alone, though OS benefit did not reach statistical significance[127]. In second-line settings, palbociclib added to endocrine therapy has been associated with longer OS, as demonstrated in PALOMA 3 (palbociclib plus fulvestrant improved OS in endocrine sensitive patients vs fulvestrant alone)[128] and in a large real world cohort[129].

From 2018 onward, CDK4/6 inhibitors plus endocrine therapy increasingly became a preferred standard first-line option for HR+/HER2− ABC. Although the SONIA trial (2024)[130] found no significant difference in OS between first- versus second-line CDK4/6 inhibitor use, the RIGHT Choice study (2024)[131] demonstrated substantial PFS benefit for first-line ribociclib plus aromatase inhibitor versus combination chemotherapy in pre/perimenopausal patients with clinically aggressive HR+/HER2− ABC (two-thirds with visceral metastases and nearly half in visceral crisis; 21.8 vs 12.8 months). These results support endocrine therapy plus CDK4/6 inhibitors as standard of care for first-line therapy, including for "clinically aggressive" disease.

Based on these results, ABC7 Consensus panel consider that it may be an acceptable option to use endocrine therapy alone as 1st line therapy for selected patients (e.g. low volume of disease, long disease-free interval, patient preferences, accessibility constraints) with ER+/HER2− ABC[132]. However, in view of the totality of data (OS benefit and different 2nd line options), the panel still favors the use of a CDK4/6 inhibitor plus endocrine therapy as 1st line therapy for the majority of patients with this ABC subtype. Based on these results, ABC7 Consensus panel consider that it may be an acceptable option to use endocrine therapy alone as 1st line therapy for selected patients (e.g. low volume of disease, long disease-

free interval, patient preferences, accessibility constraints) with ER+/HER2− ABC[132]. However, in view of the totality of data (OS benefit and different second line options), the panel still favors the use of a CDK4/6 inhibitor plus endocrine therapy as first line therapy for the majority of patients with this ABC subtype.

Despite the recommendations, Brufsky et al. (2024)[133] reported that that only 53% of US medical oncologists prescribed the first-line regimen preferred in National Comprehensive Cancer Network (NCCN) guidelines (CDK4/6 inhibitor plus aromatase inhibitor). The researchers speculated that, in addition to cost and compliance concerns, a part of the reason that this regimen was not prescribed by more oncologists was that they may have been misled by controversial studies to believe that endocrine therapy alone or with chemotherapy might be a better choice.

In New Zealand, Pharmac funding of CDK4/6 inhibitors has been a major step forward for patients with ABC, offering more effective treatment and perhaps giving clinicians confidence to avoid chemotherapy in first line.

The toxicity profiles of CDK4/6 inhibitors differ[134], allowing treatment selection to be tailored for patients with tolerability concerns. Abemaciclib, currently not funded in New Zealand, would offer an additional treatment option, increasing therapeutic flexibility for clinicians and patients. With a distinct pharmacokinetic and adverse event profile compared with ribociclib and palbociclib[135], abemaciclib is administered on a continuous twice daily schedule, in contrast to the 21-on/7-off schedule used for palbociclib and ribociclib, which may influence both tolerability and target inhibition[135].

5.2.2 First-line treatment in HER2+ ABC

ABC-NZ3 treatment guideline

Anti-HER2 therapy should be offered early (as 1st line) to all patients with HER2+ ABC, except in the presence of contraindications to the use of such therapy.

The preferred first-line treatment for HER2+ ABC, regardless of HR status, is HER2-directed therapy. In New Zealand, as elsewhere, at the time of writing that means trastuzumab (formerly Herceptin brand, now mostly Herzuma) with pertuzumab plus chemotherapy for patients with a metastasis-free interval more than months. For HR+/HER2+ patients, the chemotherapy component can be omitted or replaced with endocrine therapy if necessary, though perhaps with less effective results[136]. Endocrine therapy is also recommended for HR+/HER2+ patients, and can either can be paired with initial HER2-directed treatment or as a maintenance therapy after the initial chemotherapy component of the HER2-targeted regimen is completed. T-DM1 is the recommended and funded first-line treatment for those with MFI less than 12 months.

Cardiac issues can be a reason for not starting or for discontinuing HER2-directed therapy. Despite this, the recommended first-line HER2-targetted drugs are well-tolerated; and trastuzumab can be given without chemotherapy, potentially reducing the number of patients unable to tolerate treatment.

Rates of HER2-targeted treatment in US and Europe have been reported as 70% to 100%[43,137,138]. We note that Pharmac's Special Authority criteria specify ECOG performance status 0-1 for initiation of trastuzumab. However, standard practice internationally is to offer trastuzumab to patients with ECOG 2 (personal communication, F. Cardoso)[139] as it can be combined with endocrine therapy or less toxic chemotherapies. Depending how strictly individual oncologists apply the ECOG assessment in New Zealand, patients who elsewhere would be considered well enough to be treated, might be missing out.

The proportion of HER2+ ABC patients (2015-2022) receiving systemic treatment (89% of HR+/HER2+ and 76% of HR−/HER2+; Table 6.1, see p71) is similar to a Netherlands study of the SONABRE registry (2013-2018): 95% of HR+/HER2+ and 74% of HR−/HER2+ (n = 31) patients received systemic therapy[122].

ABC-NZ3 treatment guideline

For patients with ER+/HER-2+ ABC, for whom CT [chemotherapy] + anti-HER2 therapy was chosen as first line therapy and provided a benefit, it is reasonable to use ET + anti-HER2 therapy as maintenance therapy, after stopping CT, although this strategy has not been studied in randomised trials.

Overall new treatment regimes have led to improved outcomes for patients with visceral and non-visceral metastases. This is especially true for HER2+ tumours even with multiple sites of metastases. Focus should also be on the small number of tumours that have the chance of "cure".

In summary

- In our survey, most clinicians indicated they find it easy to access metastatic biopsies in both the private and public sector.
- HER2 status discordance from EBC to ABC occurred more often as positive-to-negative (24%) than negative-to-positive (7.6%), highlighting the importance of repeat biopsies to identify opportunities to optimise treatment.
- Median lines of therapy was 2 (ABC diagnosed 2015-2022); this did not vary by ethnicity, age, region, or subtype.
- Five-year survival: 37% for ≥4 systemic therapy lines vs 23% for 2–3 lines (ABC diagnosed 2015-2022).
- Of the 1,861 women who received endocrine therapy for their ABC (2015-2022), approximately half received 1 line, and half had 2 or more lines, with no significant difference by ethnicity, age or region.
- Approximately 53% of women with HR+/HER2− disease and 36% with HR+/HER2+ disease received 2 or more lines of endocrine therapy.
- Patients receiving ≥2 lines of endocrine therapy had very good outcomes: median OS 48 months, 5-year survival 38% (ABC diagnosed 2015-2022).
- 71% of HR+/HER2− patients diagnosed from 2020 to 2022 and received at least 1 line of endocrine therapy were treated with palbociclib (CDK4/6 inhibitor).
- HR+/HER2− patients treated with palbociclib between January 2020 and December 2022 had a median OS of 42 months.

6. Rethinking ABC: A Lot of Living

This report is particularly timely: the ABC Global Alliance recently reviewed insights from the previous decade to inform priorities for the decade ahead[8]. In alignment with this, the whakataukī that inspires this report, **Ko te pae tawhiti, whāia kia tata. Ko te pae tata, whakamaua kia tina -** *Secure the horizons that are close to hand and pursue the more distant horizons so that they may become close*, reminds us that meaningful progress requires both attention to what can be achieved today and a vision for future goals and ongoing development.

Previous sections in this report have presented comprehensive, current data on who has ABC, how it is diagnosed, how we are treating women with ABC, and how long are they living. This section looks beyond the numbers to consider what life with ABC could and should look like in an equitable society committed to enabling all people to live the best life they can.

The societal mindset that has led to changes in disability and accessibility laws and policies, while still far from perfect, can be harnessed to improve outcomes for advanced cancers, including breast cancer.

> ***With adequate resources and a shift in attitudes, it may be possible to cure some patients with MBC, treat most, alleviate the suffering of all, and abandon no one.***
>
> *- The Lancet Commission on Breast Cancer*

6.1 Cure some

ABC-NZ3 treatment guideline

Oligometastatic metastatic disease is defined as low volume metastatic disease with limited number and size of metastatic lesions (up to 5 and not necessarily in the same organ), potentially amenable for local treatment, aimed at achieving a complete remission status.

In *I'm still here*, we considered the tantalising prospect of better identifying and treating people with oligometastatic breast cancer—ABC characterised by just a few lesions that might be treated with curative intent.

It is hard to know what has happened in New Zealand since then, as data specific to oligometastases is not well collected. We are not aware of any investigation of oligometastases—but this is a difficult area to research.

Overseas studies have estimated up to 20% of ABC is oligometastatic at diagnosis[140]. The optimal treatment of oligometastases is regularly debated at medical conferences, and studies have produced conflicting evidence, as seen in the SABR-COMET[141] and NRG-BR002[142] studies of stereotactic radiation therapy for oligometastatic disease.

While much of the debate is around which patients might benefit from a local therapy, the latest guidelines emphasise systemic therapy as the first treatment for oligometastases[143]. Whether local or systemic, optimising treatment for a curative approach is emerging territory in New Zealand and beyond. Results of additional ongoing trials, including STEREO-SEIN (NCT02089100)[144], CLEAR (NCT03750396)[145], and LARA (NCT04698252)[146], are awaited.

ABC-NZ3 treatment guideline

Systemic therapy should be the first treatment initiated and decisions about possible locoregional treatments should be taken based on disease response. However, locoregional treatments may be considered prior to systemic therapy in patients where rapid symptom control is required.

In our survey, two-thirds of clinicians reported they had treated patients with oligometastatic ABC in the past 2 years, an average of nine patients per clinician (data not shown). Most recognised oligometastatic patients as being different from other ABC patients (Figure 6.1). Nearly half of clinicians agreed that existing imaging provided adequate information to treat oligometastatic disease; most agreed that their patients had access to the "treatment they need" (Figure 6.1). However, on average, clinicians treated only two patients with intent to cure (data not shown).

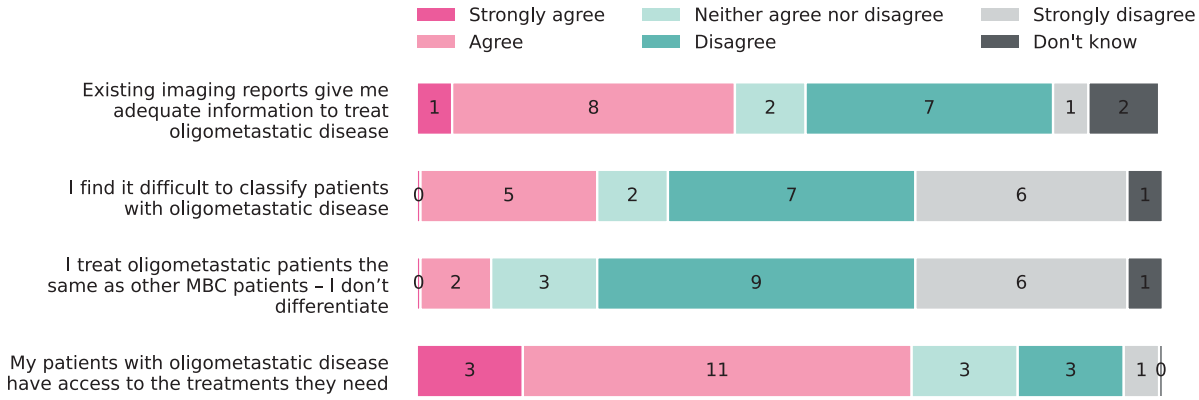

Figure 6.1 Clinicians' response to the question: "To what extent do you agree with the following statements?"

The increasing focus on potentially curable oligometastatic disease and the advent of new breakthrough medications—particularly in HER2+ ABC—has led to the growing, if cautious, discussion of the possibility of a cure among researchers and clinicians. At this stage, speculation about potential cure is only in the context of the small minority of patients who are "exceptional responders" to treatment. For example, for many patients with HER2+ ABC, HER2-directed therapy is given until progression or unacceptable toxicity. STOP HER2 challenges this assumption—testing whether long-term therapy can be safely suspended in exceptional responders[20]. Participants will be regularly monitored for any recurrence; Results of STOP-HER2 will be reported at the end of 2026.

New evidence and adoption of new treatments may expand the group who can be cured. In The Lancet Commission's survey of healthcare practitioners, 20% agreed with the statement, "Metastatic Breast Cancer will become curable within the next decade"[2](p 47, supplementary material), and "55% agreed that it might become curable for specific subtypes"[2](p1916).

Is it time to plan for accurate and systematic identification of patients, and for prospective studies to trial how oligometastatic disease can best be treated in the New Zealand context?

6.2 Treat most

The Lancet Commission called for metastatic breast cancer patients to "receive individualised treatment with an honest but positive approach"[2](p1912) and noted that international studies show median overall survival (OS) approaching 5 years for some HER2+ and ER+ subtypes.[2,147] In our ABC cohort, these subtypes account for 85% of patients (based on first breast cancer diagnosis; *section 3.3.2*), so patients must have access to life-extending therapies.

The Commission's perspective was global, covering countries where ABC is treated very little or almost not at all, due to lack of funded drugs and very late diagnosis of metastases. In some of those countries, the goal to "treat most" will be a stretch. In countries like New Zealand, however, with state-funded access to modern medical treatment in specialist cancer units, it seems reasonable to interpret "most" as meaning "nearly all".

6.2.1 ABC at the MDM

ABC-NZ3 treatment guideline

The management of ABC is complex and, therefore, involvement of all appropriate specialties in a multidisciplinary team (including but not restricted to medical, radiation, surgical oncologists, imaging experts, pathologists, gynaecologists, psycho-oncologists, social workers, nurses and palliative care specialists), is crucial.

International and NZ ABC guidelines specify the need for multidisciplinary treatment of ABC[120,25]. By definition, the breast cancer multidisciplinary meeting (MDM) held regularly in all cancer centres, is the best place to discuss such treatment. Therefore, in 2018, *I'm still here* called for all ABC diagnoses to be presented at MDMs. The ABC Global Alliance states that every ABC person should be seen in MDM[148].

However, in New Zealand and most other countries, breast cancer MDMs were established for planning treatment of EBC, with surgery-led presentation of new diagnoses. Most *de novo* ABC cases (though not all) are presented to MDMs, as patients' first specialist appointment, following a GP referral and diagnostic investigation, is usually with a surgeon.

In our clinician survey, 11 out of 21 specialists said at least three-quarters of their *de novo* ABC patients are presented at MDMs (Figure 6.2). Conversely, 14 out of 21 presented less than a quarter of recurrent patients to MDMs, with only two doctors presenting three-quarters or more. Waikato Hospital now endeavour to present recurrent patients to MDMs more than previously.

For patients with *de novo* ABC:	For patients with recurrent ABC:
	1 clinician presented 0% of their patients to the MDM
4 clinicians presented 1-25% of their patients to the MDM	14 clinicians presented 1-25% of their patients to the MDM
4 clinicians presented 26-50% of their patients to the MDM	1 clinician presented 26-50% of their patients to the MDM
2 clinicians presented 51-75% of their patients to the MDM	3 clinicians presented 51-75% of their patients to the MDM
11 clinicians presented 76-100% of their patients to the MDM	2 clinicians presented 76-100% of their patients to the MDM

Figure 6.2 Clinicians' responses to the question: "What proportion of your ABC patients are presented at MDMs?"

The Lancet Breast Cancer Commission proposed a performance indicator of "minimum of 50%, aiming at 95% of patients with ABC discussed at MDMs."[2](p1917). In a recent Australian prospective study, 57% of ABC treatment plans changed after presentation to the MDM, and 93% of high-impact recommendations were implemented, with costs offset by improved clinic efficiency[149].

It is possible that presenting all ABC cases to the MDM might result in more patients receiving optimal treatment.

6.2.2 Are we treating most?

In 2018, *I'm still here* reported that 27% of women diagnosed with ABC from 2000 to 2015 had no record of having received systemic treatment, based on Register data. Our findings now show this proportion to be 18% of patients diagnosed 2015-2022.

Studies from other countries report less than 10% of ABC patients not receiving systemic treatment[44,45,150,151]. However, studies reporting data on untreated ABC patients are scarce, particularly those based on population registries.

Systemic treatment for ABC

In this section, we examine women who received systemic therapy to explore whether differences in patient or tumour characteristics are associated with being more or less likely to receive treatment. We also looked at survival for these women and for those with no record of treatment. As for why ABC patients have no systemic treatment, we can point to likely reasons, but further targeted research—beyond the scope of this report—would be needed to confirm and better understand the gaps in systemic treatment.

An important question to take forward into considerations for the future of ABC treatment: Are we missing the opportunity to prolong life for some of these women, perhaps in some cases for a long time?

	Use of systemic therapy N = 2532 (82%)[1]	**No documented systemic therapy N = 553 (18%)[1]**	**Overall N = 3085 (100%)[1]**	***p* value**
(a) Ethnicity				0.2
Māori	336 (84%)	63 (16%)	399 (100%)	
Pacific	244 (83%)	50 (17%)	294 (100%)	
Asian	191 (86%)	32 (14%)	223 (100%)	
European/Other	1,761 (81%)	408 (19%)	2,169 (100%)	
(b) Age at metastatic diagnosis				**<0.001**
<45	314 (88%)	41 (12%)	355 (100%)	
45-54	525 (89%)	65 (11%)	590 (100%)	
55-69	830 (86%)	130 (14%)	960 (100%)	
70+	863 (73%)	317 (27%)	1,180 (100%)	
(c) Region				0.092
Auckland	1,173 (84%)	227 (16%)	1,400 (100%)	
Waikato	355 (81%)	82 (19%)	437 (100%)	
Wellington	338 (78%)	94 (22%)	432 (100%)	
Christchurch	386 (81%)	89 (19%)	475 (100%)	
Other DHBs (from 2020)	278 (83%)	55 (17%)	333 (100%)	
(d) Receptor status				**<0.001**
HR+/HER2-	1,649 (87%)	240 (13%)	1,889 (100%)	
HR+/HER2+	403 (89%)	48 (11%)	451 (100%)	
HR-/HER2+	122 (76%)	38 (24%)	160 (100%)	
Triple Negative	220 (60%)	146 (40%)	366 (100%)	
e) Type of metastatic sites				**<0.001**
Non-visceral only	1,098 (91%)	113 (9.3%)	1,211 (100%)	
Both visceral and non-visceral	787 (83%)	159 (17%)	946 (100%)	
Visceral only	616 (73%)	232 (27%)	848 (100%)	
(f) Number of metastatic sites				>0.9
1	1,461 (82%)	318 (18%)	1,779 (100%)	
2	596 (82%)	133 (18%)	729 (100%)	
3+	475 (82%)	102 (18%)	577 (100%)	
(g) Recurrent or *de novo*				**0.002**
De novo	924 (85%)	163 (15%)	1,087 (100%)	
Recurrent	1,608 (80%)	390 (20%)	1,998 (100%)	
(h) Metastasis-free interval				**<0.001**
5-23 months	399 (71%)	161 (29%)	560 (100%)	
24-59 months	563 (82%)	127 (18%)	690 (100%)	
60-119 months	437 (87%)	68 (13%)	505 (100%)	
≥ 120 months	209 (86%)	34 (14%)	243 (100%)	

[1]Individuals were classified as `use of systemic therapy` or `no documented systemic therapy` based on the presence or absence of systemic therapy information in the datasets.

Table 6.1 Overview of ABC patients having no or any systemic therapy (2015-2022)

ABC-NZ3 treatment guideline

The age of the patient should not be the sole reason to withhold effective therapy (in elderly patients) nor to over-treat (in young patients).

In Table 6.1, there were no statistically significant differences between ethnicities in the proportions of patients who did (or did not) receive treatment (a). Age-stratified analyses for ethnicity also did not reveal any disparities (data not shown). There were also no statistically significant differences between regions (c) in the proportion of women receiving treatment, suggesting a fairly uniform delivery of care nationwide.

There was greater variation within other patient and tumour characteristics. Patients receiving systemic treatment were less likely to be older (70+) (b). Tumour characteristics associated with poor prognosis might explain the proportion of patients in this older age bracket; an in-depth investigation is warranted to better understand this and identify whether there are patients who might benefit from treatment. We know that most older patients in our cohort have HR+/HER2− breast cancer (data not shown) and that easily-delivered oral endocrine therapies and CDK4/6 inhibitors are the preferred systemic therapy for women of all ages. The International Society of Geriatric Oncology (SIOG) recommends CDK4/6 inhibitors along with standard endocrine therapy as suitable for elderly women in the absence of more aggressive disease that might require chemotherapy[152]. SIOG emphasises that treatment decisions should be guided by geriatric assessment, and in some frail or comorbid older women—even those with ECOG 0–2—less intensive approaches such as endocrine therapy alone may be appropriate.

Patients with *de novo* breast cancer had a higher likelihood of receiving systemic treatment than recurrent (g). This aligns with overseas studies showing that, in the first-line setting, *de novo* ABC patients are more likely than recurrent patients to receive combination therapy or HER2-targeted therapy[44,45,150,151], reflecting more intensive management.

Women with a metastasis-free interval (MFI) of less than 2 years were less likely to receive treatment (h). This is unsurprising given that shorter MFI is associated with worse prognosis (potentially indicative of poorer performance status, limiting treatment options), and is more common among women with triple negative or HER2+ ABC (see *section 3.3.3*)—subtypes that were also less likely to receive treatment compared with HR+ disease (d). It will be interesting to revisit treatment patterns for HER2+ and triple negative subtypes in the future, when recently funded therapies—such as trastuzumab deruxtecan and pembrolizumab (which were unavailable at the time of these analyses)—are widely used. Pembrolizumab is funded in New Zealand for approximately 50% of triple negative ABC with sufficient PD-L1-expression[155].

ABC-NZ3 treatment guideline

PD-L1 status should be tested in cases of first line triple negative ABC, if treatment with immune checkpoint inhibitors is accessible, preferably in a metastatic tumour sample.

Patients with visceral metastases (e) were less likely to receive treatment, whereas the number of metastatic sites (f) did not influence treatment likelihood. This pattern suggests that comorbidities and performance status—potentially affected by visceral disease—are important considerations, as functional limitations may complicate therapy in these patients.

Patients with ABC who do not receive systemic treatment typically have markedly poorer survival, reflecting factors such as poor performance status or comorbidities[151]. In our cohort, the median survival for patients without documented systemic therapy was only 2.5 months (Table 6.2), which may partly reflect the absence of treatment but also aligns with the likelihood that many of these patients were too unwell to tolerate systemic therapy. Survival for those who received systemic therapy is shown in Table 6.3, providing a benchmark for expected outcomes in treated patients.

	Median OS, months (95% CI)	1 year (95% CI)	2 years (95% CI)	5 years (95% CI)
Patients without systemic therapy (n = 383)	2.5 (2.1, 3.1)	16% (13, 21)	7.3% (5.1, 10)	3.6% (2.1, 6.1)

Table 6.2 Overall survival (OS) for ABC patients without documented systemic therapy (2015-2020)

	Median OS, months (95% CI)	1-year (95% CI)	2-year (95% CI)	5-year (95% CI)
All patients	**21 (19, 22)**	**63% (61, 65)**	**45% (43, 47)**	**20% (19, 22)**
Any systemic therapy	26 (25, 29)	73% (71, 75)	54% (51, 56)	24% (22, 26)

Table 6.3 Overall survival (OS) for ABC patients without documented systemic therapy (2015-2020)

The case of no systemic treatment

Potential reasons for patients not receiving treatment include clinician recommendation and patient choice, the latter often strongly influenced by the former. An Auckland study of ABC patients diagnosed 2013-2015 reported that poor performance status and patient choice accounted for the majority of patients (55% and 21%, respectively) going without systemic therapy[123]. Our survey matched these findings: clinicians said their main reasons for not recommending treatment were if they believed treatment would not extend life, if the patient had poor performance status, or if the patient decided not to continue treatment.

Clinicians' reasons for not recommending treatment (open-ended survey responses):

"When it is the patient's choice. When the drug is unfunded and the patient cannot afford it. If there are comorbidities that mean a drug is contraindicated. If it is likely that toxicity will outweigh benefit and significantly adversely impact on a patient's quality of life."

"In consultation with lead clinician (usually med oncologist) if p[atien]t too unwell or disease too extensive to support treatments. If the patient declined treatment options."

"If the patient's co-morbidities precluded safe treatment. If the patient did not want treatment after discussion."

"If the patient expressed a wish not to have them OR if patient's organ function/performance status didn't allow it to be offered safely."

"If they had very advanced disease, e.g. organ failure, with poor performance status - in this setting would still discuss treatment as an option, although would counsel against it. In a young, previously fit patient, may still offer treatment in this setting. More difficult in this setting for triple negative breast cancer, where treatment is more toxic."

"Unfortunately most MBC treatment is not life extending… All treatment decisions rest on a process of shared decision-making taking into account safety, efficacy and patient preference. I will not use futile or unacceptably dangerous treatments."

Concerns about excessive toxicity can be an appropriate reason not to offer treatment. An important question is whether performance status is assessed accurately in the context of the less toxic ABC treatment now available. A Canadian registry study[156] evaluated survival in one-third of *de novo* metastatic breast cancer patients whom were deemed "ineligible" for treatment using common clinical trial criteria (mainly due to renal dysfunction, also previous immunosuppression or cardiovascular disease). Three-quarters of "ineligible" patients went on to have treatment and experienced a median OS of 2 years. One-quarter did not receive treatment, with a median OS of 2 months[156].

Patient choice

In our survey of patients with ABC, only 10% stated they had turned down or delayed treatment at any time. It is worth noting that this is in relation to any treatment over the course of ABC and may not mean a refusal of all treatment. Of those who said they would refuse treatment, most cited side effects as the reason, although the underlying rationale was not always straightforward.

> ***It was suggested I go on Tamoxifen but if I knew then what I know now, I would have taken it. My husband had recently died of lung cancer and I was selling and buying a new house so I was concerned about the side effects. Now my records show I refused treatment but really, I was scared and not informed.***
>
> *- Patient*

> ***It was an injection and I had just been through a lot of injections and didn't have the head space for it.***
>
> *- Patient*

Although these comments appear to align with clinician comments above, regarding patients not able to tolerate treatment or when side effects preclude safe treatment, a nuanced, patient-centred approach that supports fully-informed, shared decision-making is vital, as the following patient's personal account suggests.

> ***The oncologist in the public system offered me a form of chemo that would have given me 3 extra months of life. He refused to treat me if I opted for immunology because he said that I wouldn't be able to tolerate the chemo that went alongside the immunology. I turned down 3 months extra life [in favour of] the possibility of a full recovery with chemo and immunology. I have now had three full rounds with only minimal side effects.***
>
> *- Patient*

Life expectancy

Assessment of life expectancy can be challenging. One study found that 26% of oncologists were "unduly pessimistic" in their prediction of advanced cancer survival while only 12% were "unduly optimistic"[157]. However, other studies found oncologists were no more likely to overestimate than underestimate survival, but variation in accuracy of estimates was wide: 56% to 63% of patients had an overall survival within half to double the clinician's estimate, and 11% to 14% of patients had an OS greater than three times the estimate[158,159].

There may be an opportunity for clinicians to re-evaluate the criteria and thresholds (implicit or explicit) that inform treat-or-not-treat recommendations, or to reframe the conversation with patients in a way that enables the patient to better balance the risk of toxicity with potential survival gains[160].

Do all ABC patients see a medical oncologist?

In the period of study, nearly all ABC diagnoses in the Register were identified directly through patient notes in the hospital patient management system, or through follow-up via GP. GPs themselves do not diagnose ABC, they record patient updates from hospital specialists, and may also have encountered new ABC diagnoses after ordering imaging prompted by symptoms. It seems unlikely a GP would not refer such a patient to the breast clinic or oncology service. If referred to the breast clinic, we would expect the patient to then be seen by an oncologist.

Only 4.4% of all first breast cancer diagnoses (early or advanced) are found incidentally through other treatment or through emergency department (ED) visits[161]. While it is technically possible for a *de novo* diagnosis in the ED to not be referred to the breast clinic or oncology, we believe it would be rare.

Anecdotally, we do hear of patients with recurrent HR+ ABC being treated by their original surgeon without referral to oncology. This is likely not appropriate in the more complex therapeutic era of CDK4/6 inhibitors and other new treatments.

6.3 Alleviate the suffering of all

The Lancet Commission's call to "alleviate the suffering of all" allows for every person with ABC to experience improvement in their care and quality of life, no matter what their starting point.

In this section we look the impact of physical, emotional / psychological and financial suffering on the lives of New Zealanders with ABC.

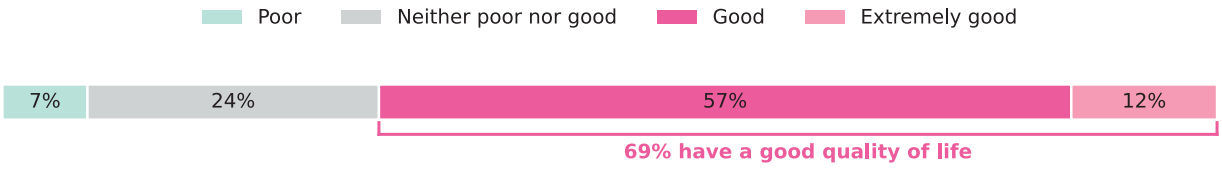

Figure 6.3 Patients' responses to the question: "How would you rate your quality of life?"

Most patients with ABC in our survey reported a good quality of life (Figure 6.3). The unprompted factors to which patients attributed their good quality of life were less to do with the healthcare system or their cancer treatment, and more to do with relationships and self-care (Figure 6.4).

> ***Friends and family rallying around me. Being able to still drive. Being able to manage pain effectively myself. Now having treatment at home (oral chemo).***
>
> *- Patient*

> ***No current symptoms and stable, little or no complexity from drugs. An ability to work and help others. Positive interaction with oncologist, friends and family.***
>
> *- Patient*

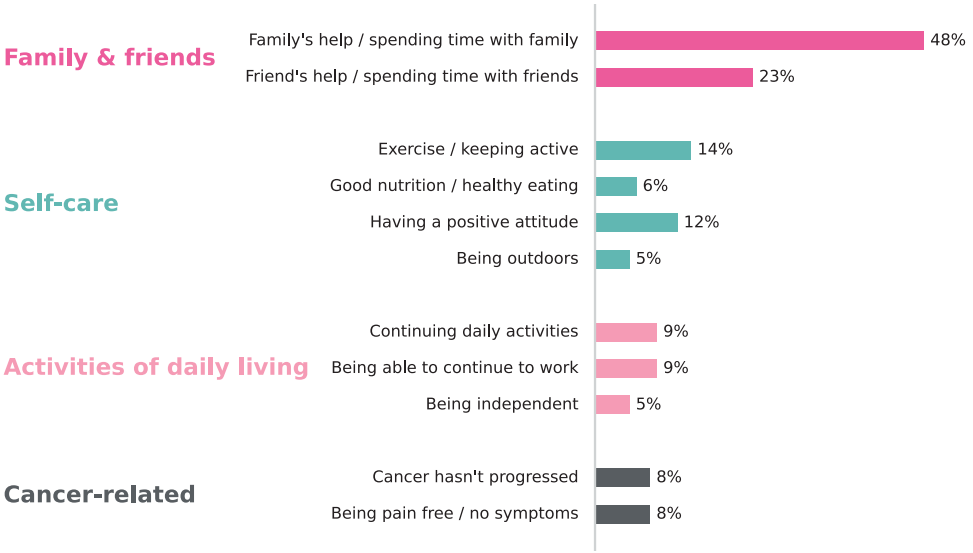

Figure 6.4 Patients' responses to the question: "What is having the most positive impact on your quality of life?"

Healthcare professionals indicated that a good treatment response had the most positive impact on their patients' quality of life, with palbociclib being specifically mentioned by a number of surveyed clinicians in this context.

> ***Palbo in particular is associated with excellent QOL and delays time to chemotherapy, and in my opinion has had a very positive impact.***
>
> *- Medical oncologist*

> ***Delaying time to chemo through better endocrine options, especially palbociclib.***
>
> *- Medical oncologist*

Randomised controlled trials and "real-world" studies have shown that the addition of palbociclib to endocrine therapy largely maintains or even improves quality of life[162,163]. The maintenance of quality of life appears to hold even in older or more frail patient populations, where treatment modifications (dose reductions, interruptions) are more common[164].

The majority of patients believe that their medical team is doing everything they can to improve their quality of life (76%) and help them live longer (78%) (Figure 6.5). Yet, there remain 13% to 14% who are indifferent and 5% to 6% of patients who do not feel positively about the efforts of their medical team in this regard.

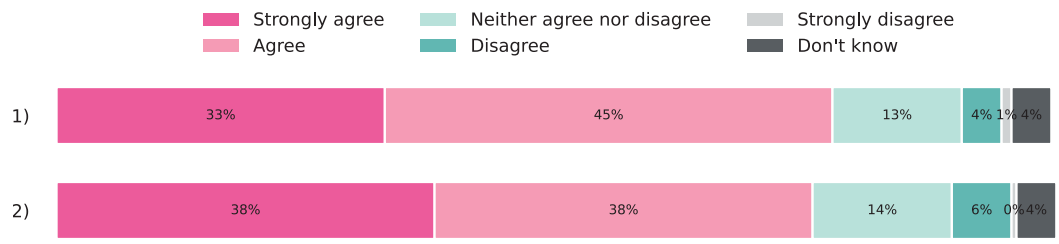

Figure 6.5 Patients' responses to the questions "To what extent do you agree or disagree with the statements:
(1) 'My medical team is doing everything possible to help me live longer' and
(2) 'My medical team is doing everything they can to give me the best possible quality of life'

While the reasons why patients may not feel positively about their medical management are likely multifactorial and complex, common themes from our survey of ABC patients were 'regular communication' and ultimately being 'listened to by healthcare professionals' as helping with communicating ABC symptoms and side effects.

6.3.1 Physical, emotional and psychological suffering

When survey respondents were asked which factors had the most negative impact on quality of life, cancer-related symptoms and treatment side effects (whether physical, psychological or emotional) overwhelmingly dominated their unprompted responses (Figure 6.6).

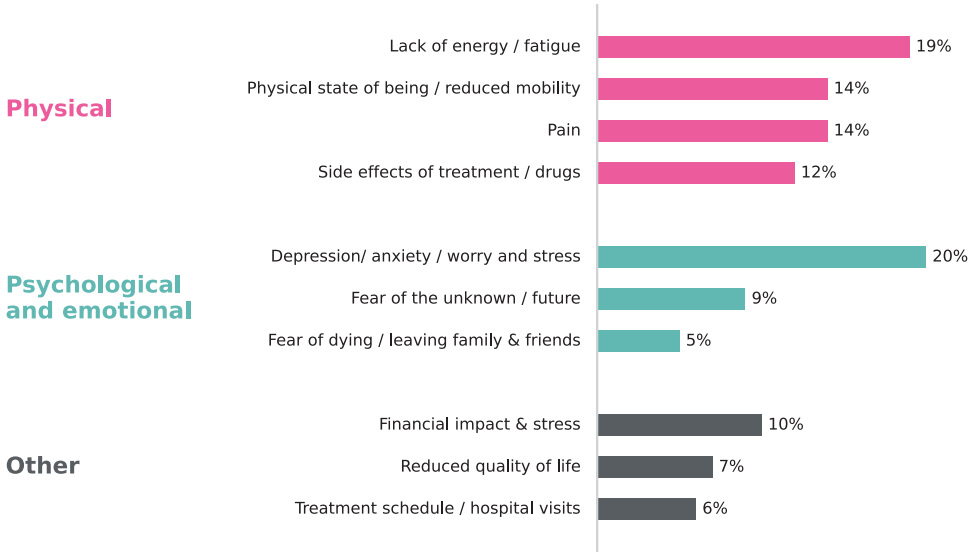

Figure 6.6 Patients' responses to the question: "What is having the most negative impact on your quality of life?"

Just over three-quarters of patients say their healthcare providers support them with managing symptoms and side effects (Figure 6.7). A minority expressed disagreement, though the underlying reasons were not identified. Gaining insight into which aspects mattered most to them would be valuable. Our survey did not specifically ask patients about treatment lines, but there is evidence from international literature which suggests the more lines of treatment a patient has had, the less likely their clinician will ask about health-related quality of life[165].

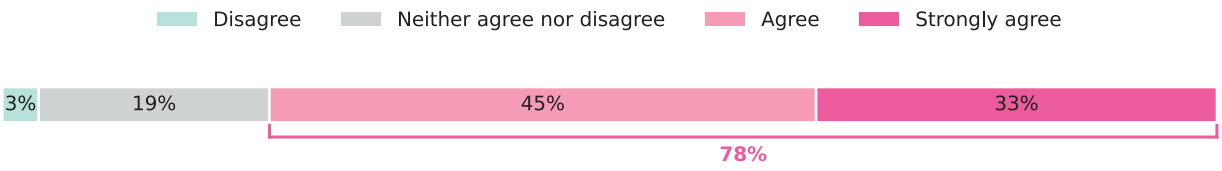

Figure 6.7 Patients' answers to the question: "To what extent do you agree that your healthcare providers (e.g. doctors, nurses) support you in managing your symptoms and side effects?"

Only a third of patients had good ("lots of") control over their symptoms (Figure 6.8). While "some control" is better than none, it is not an acceptable level when there is no end in sight to the treatment and the side effects.

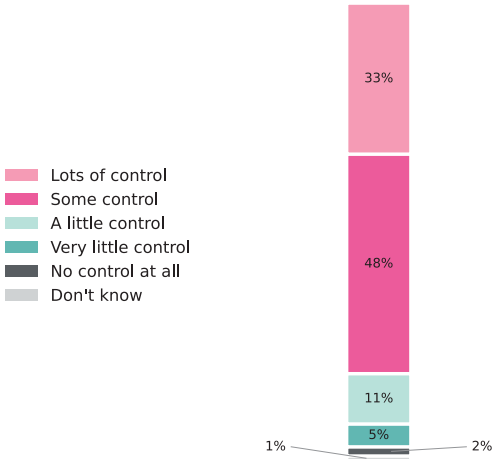

Figure 6.8 Patients' responses to the question: "How much control do you feel you have over managing your symptoms?"

> ***I seem to be always dealing with a new symptom or side effect and I feel like I have to put up with it until it works with my teams schedule to deal with it.***
>
> *- Patient*

6.3.2 Financial suffering

ABC had significant financial impact on patients' households, with three-quarters being worse off, and one-third "a lot worse" (Figure 6.9).

A total of 30% of patients said they had asked Work and Income NZ (WINZ) for financial assistance; 18% received assistance and 12% did not (data not shown).

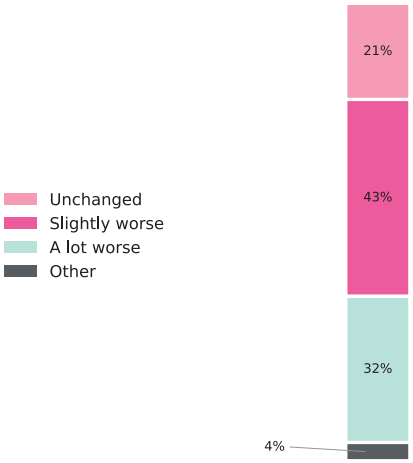

Figure 6.9 Patients' answers to the question: "Which of the following best describes the impact your diagnosis of advanced breast cancer has had on your household's financial situation?"

Employment and ABC

Around half of patients had worked full-time before their ABC diagnosis, but this decreased to 12% after diagnosis. A quarter of patients were permanently unable to work as a result of ABC (Figure 6.10).

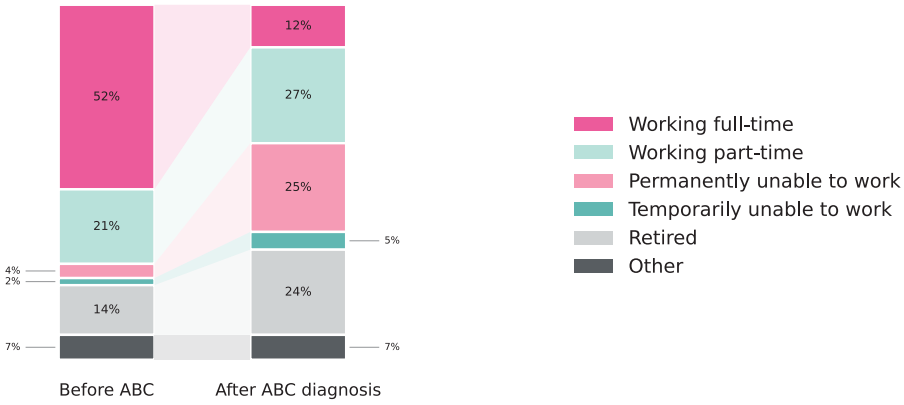

Figure 6.10 Patients' answers to the question: "Which of the following best describes your work situation before your diagnosis of advanced breast cancer?"

Unsurprisingly, of those people who were working full or part time, 90% took time off to attend medical appointments, with the majority (68%) having to take paid leave and almost half (46%) having to take unpaid leave at some point. Two-thirds (67%) said family members or friends also took time off work to accompany them. In addition to the cost of unpaid leave, using paid leave for medical purposes reduces the opportunities for holidays, time with family, and generally enjoying life.

It has been estimated that in 2015, ABC was associated with US$6·6 billion in lost productivity in the USA alone, mostly due to days missed at work and home due to illness and premature mortality[166].

Inadequate or absent treatment not only has a devastating effect on the patient, their families, and local communities, but also creates a global economic disadvantage.

Use of private healthcare

Over a third (37%, data not shown) of patients opted for private healthcare across categories that included specialist appointments, chemotherapy, scans, surgery, immunotherapy and radiation treatment, as well as some supportive care. Of those whose private care wasn't covered by insurance, 49% spent over $20,000, with 28% spending over $50,000 (Figure 6.11).

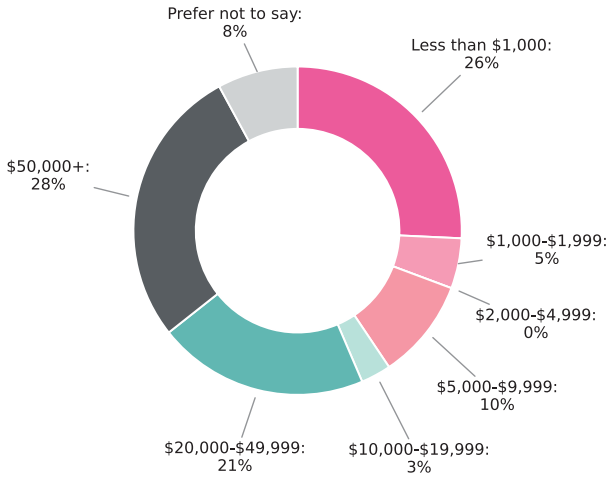

Figure 6.11 Patients' responses to the question: "How much in total do you think you have spent on private healthcare?"

6.3.3 How do we alleviate suffering for all?

Patients were asked what would make the biggest difference to their experience. Recurring themes were "access to unfunded drugs" and "more information about drugs and treatment" (Figure 6.12).

> ***I have been living with MBC for 10 years and am grateful for the support I have had; however, I have had to advocate and fight for myself over many years. Young women in NZ should be able to access the drugs they need to survive and bring up their children. It's time NZ grew up and funded health in a proactive way.***
>
> *- Patient*

> ***Proper funding of cancer drugs in New Zealand, so that the current inequitable public vs. private healthcare system ceases to exist - and everybody has access to the same medications that are standard overseas, e.g. UK and Australia. Having to organise petitions and protests to get decent cancer treatment is not okay! In hand with that, a policy position that people with advanced cancer are as entitled to high quality treatment and care as people with early stage cancer; and that our right to life is important too.***
>
> *- Patient*

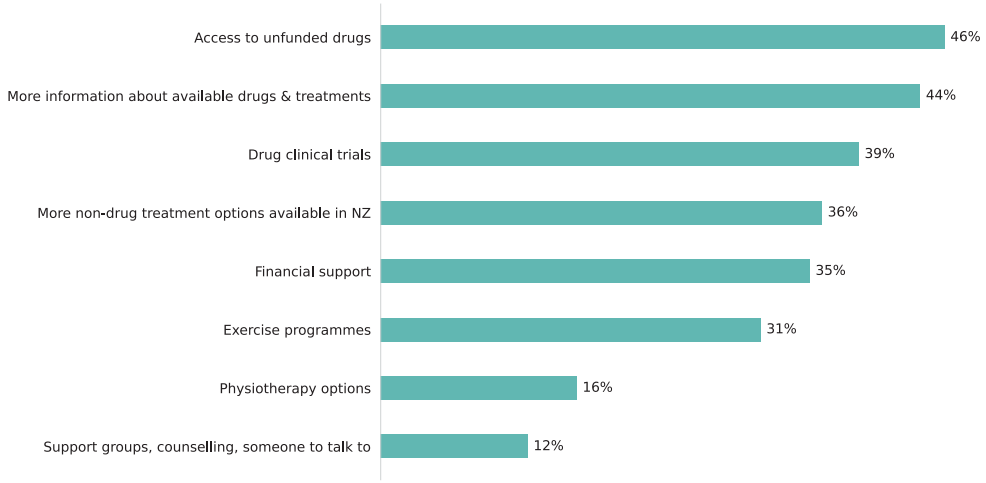

Figure 6.12 Patients' responses to the question: "Are there any treatment options, services or other things that aren't available to you at the moment that would make a difference to you?"

Following Pharmac's decision to switch funding from Herceptin (trastuzumab) to the cheaper biosimilar Herzuma in August 2023, it was hoped that the cost savings may have been used to fund trastuzumab as re-treatment for patients whose cancer has progressed. Clinical evidence, including results from the HER2CLIMB trial[167], support using HER2-directed therapy again after progression, and international guidelines—as well as Australia's funding system[168]—already allow this. However, as of December 2025, Pharmac still has not expanded funding to allow Herzuma to be used a second time for patients whose cancer has progressed, whether in ABC or EBC.

Access to clinical trials was a common theme mentioned by women in our survey to make a difference to living with ABC. However, less than a quarter have discussed this with their clinical team; with over half of patients being the one to initiate the conversation (data not shown). While the majority of patients say their medical team would be open to discussing clinical trials, a large number (22%) did not know how their medical team would respond to such conversations (Figure 6.13).

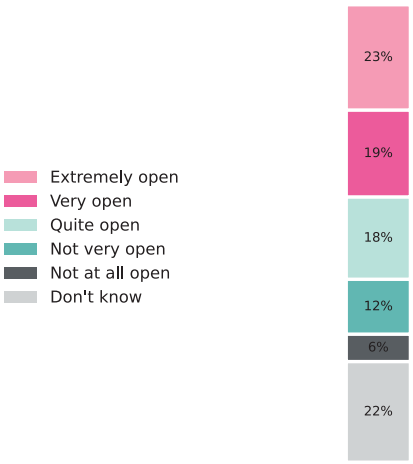

Figure 6.13 Patients' responses to the question: "How open do you think they would be to talking with you about clinical trials?"

Most patients in our survey mentioned that cancer symptoms and treatment side effects have the biggest negative impact on quality of life. Digital therapeutics—for example, apps and AI-assisted initiatives—that enable patients to better manage their symptoms may help reduce suffering and improve quality of life.

ABC-NZ3 treatment guideline

From the time of diagnosis of ABC, patients should be offered appropriate psychosocial care, supportive care, and symptom-related interventions as a routine part of their care. The approach must be personalised to meet the needs of the individual patient.

Moser and Narayan (2020)[167] combined multidisciplinary team care with AI-supported symptom monitoring which led to earlier detection of worsening symptoms and more coordinated, personalised responses. In their model, AI tools analysed patient-reported symptoms and clinical data in real time, flagging concerning patterns—such as rising pain, fatigue, or treatment-related side-effects—so clinicians could intervene sooner. This proactive approach improved symptom control and helped maintain better overall quality of life for patients.

The PRO-B study weekly app alarm-based patient reported outcome monitoring led to meaningful reductions in fatigue and improvements in quality of life compared with quarterly monitoring, as well as a substantial reduction in mortality (about 29 % lower risk of death in the intervention group)[170]. More frequent symptom monitoring was also associated with high patient engagement and improved communication with care teams, and it enabled earlier detection of deteriorating symptoms.

Patients in New Zealand have commented on the usefulness of an app to track symptoms and side effects.

> ***"It would be great to have an app to enter food; toilet; pain; energy etc. and summarise reports. I used to keep notes for months and then draw charts for doctors. I tried a few apps but the only one that had everything I wanted cost money. Most are aimed at [other diseases] e.g. IBS [irritable bowel syndrome] sufferers and don't report in a useful way. It would be good to see if I had consistent reactions to a medication; laxative; food type and could see that over time."***
>
> *- Patient*

An online symptom reporting and management service—ABCpro—has been trialled by Breast Cancer Foundation NZ in partnership with Waikato Hospital. ABCpro offers patients personalised telehealth nurse support to help patients manage symptom burden in between clinic appointments and supports timely management or escalation when needed. As one patient we surveyed said:

> ***I seem to be always dealing with a new symptom or side effect and I feel like I have to put up with it until it works with my teams schedule to deal with it.***
>
> *- Patient*

ABCpro is designed to help patients stay on top of their symptoms in real time. Patients carry out a weekly online survey about their symptoms and a dedicated ABC nurse follows up with a phone call to work through any symptoms that require attention. Feedback has been overwhelmingly positive with patients reporting they feel reassured and have some control back.

6.4 Abandon no one

> ***When you have advanced breast cancer the sigh in the room is always there. Whatever is wrong, you feel concerned that the higher level of care is not there in the medical system anymore - you are waiting to die in most medical people's eyes, so why bother doing more for you? It really pisses me off having to advocate and cajole to get more input. My oncologist really cares (always has) and has interfered when my care has been inadequate or someone in the system glosses over my real needs.***
>
> *- Patient*

Patients living with ABC should feel confident that their care meets their needs, their concerns are heard, and that they are empowered to participate in decisions about their treatment and wellbeing.

Improving communication between healthcare professionals and patients is one of the 10 goals outlined by the ABC ABC Global Alliance (2025-2035)[170], a focus we also consider crucial as it is central to patient empowerment[172]— a process through which people gain greater control over decisions and actions affecting their health[173,174]. Evidence suggests that this greater sense of control may help mitigate feelings of helplessness or abandonment in cancer care[175].

In our survey, almost half of patients (41%) felt more involved in the decision-making process through the management of their ABC compared to their EBC.

> ***I am comfortable with my level of involvement. I feel more empowered this time around as I have been through this before and I know what questions to ask. I am also very fortunate because even though it is 14 years on I have the same Oncologist and Oncology nurses, so there is already a trusted relationship.***
>
> *- Patient*

A third of patients said having more information available would help to make them feel more involved (Figure 6.14).

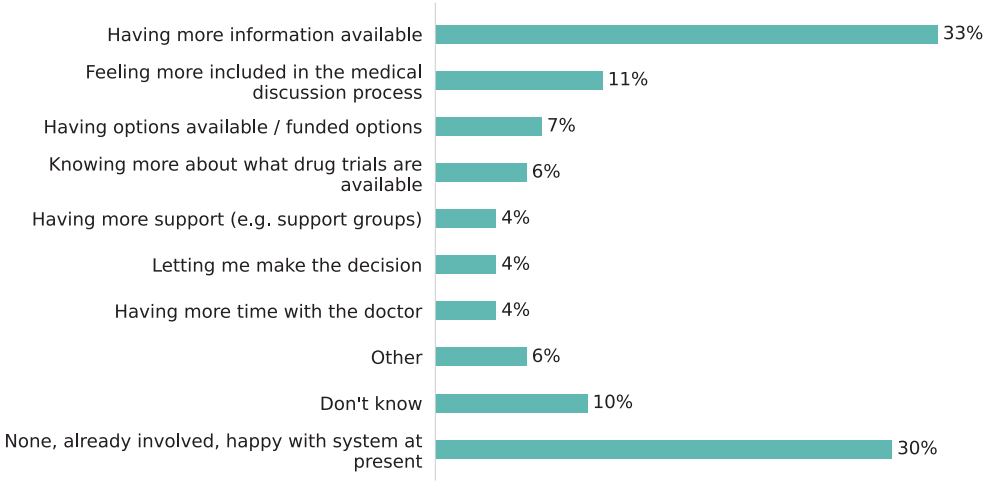

Figure 6.14 Patients' responses to the question: "How could you be more involved in decision-making around your advanced breast cancer?"

By providing knowledge, tools, and confidence to participate in their care, patients are less likely to feel isolated or overlooked, even when facing advanced disease.

> ***The doctors have been very open about my limited options. We have tried chemo and radiotherapy without much success. They were very relieved when I started talking about palliative care. I led the decision to switch.***
>
> *- Patient*

For patients with advanced life-limiting illness, the meaning of "empowerment" has been suggested to differ from that of other patient groups, in that it refers to preserving self-identity until the very end of life[176]. Being listened to, treated with dignity, and included in decision-making is foundational to not feeling abandoned.

> ***My oncologist has a lovely, caring manner. I feel as though I can be completely honest with her and she will treat me with respect. That is, I always feel listened to.***
>
> *- Patient*

Support services are essential for holistic, person-centred care in ABC[177]. Among patients in our survey, use of support services was high, with patient support organisation Sweet Louise and Facebook group Metavivors being used by most patients (Figure 6.15). These two, along with hospice services, were rated most valuable, which may suggest a need for more services tailored and dedicated to the specific needs of those with metastatic disease.

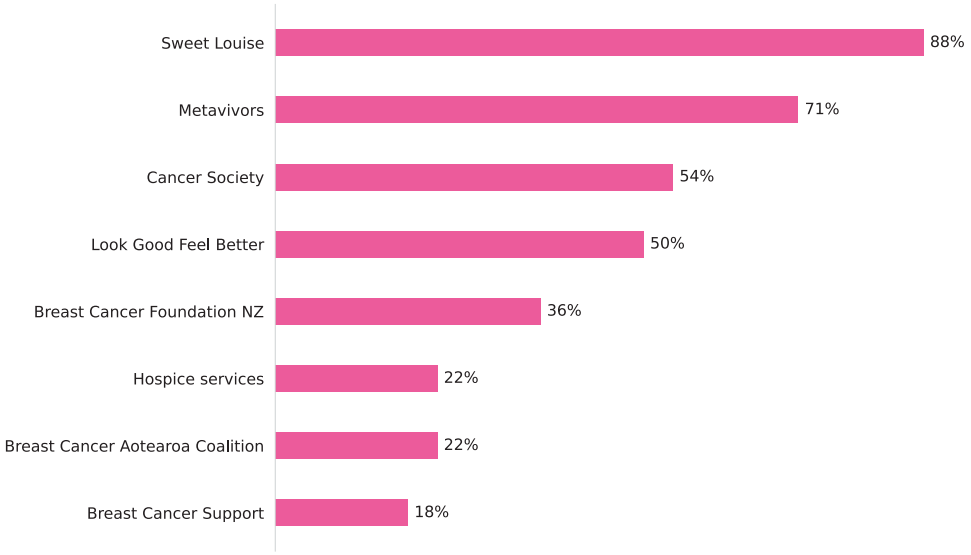

Figure 6.15 Patients' responses to the question: "Which services have you used since your ABC diagnosis?"

The ABC Global Alliance highlights persistent gaps in referral to and access to support services worldwide[177]. In our survey, patients were recruited via support services and therefore more likely to have access, yet some still reported not being aware of them at the outset:

> ***Wish my oncologist told me about the support organisations - Cancer Society; BCSS and Sweet Louise.***
>
> *- Patient*

One of the goals stipulated by the ABC Global Alliance for the next decade calls for structured, planned and personalised approaches to information provision across the ABC care pathway, ensuring patients receive consistent and appropriate information as their needs evolve[178].

> ***You get diagnosed with breast cancer and you walk out with a wealth of information; pamphlets; etc you get diagnosed with stage four you walk out with nothing and what feels like no help; now four years down the track for me and I still feel a lack of information and support.***
>
> *- Patient*

Providing standardised information across ABC pathways supports equity by establishing a consistent level of knowledge for all patients, regardless of where or how they access care. The ABC Global Alliance emphasises equitable access to comprehensive care for people living with ABC[179]. Clinicians in our survey recognised this as a challenge in New Zealand and noted measures that could positively impact patients:

> ***The right treatment close to home and publicly funded.***
>
> *- Radiation oncologist*

> ***Better local access to clinical trials/ radiotherapy and investigations (reduce time toxicity). Funding and resources to expand local treatment hubs to reduce time/ financial toxicity.***
>
> *- Radiation oncologist*

Access to comprehensive care can also be impeded by system limitations—such as short appointments or lack of continuity of care. As two patients explain:

> ***Appointments are so short; there is very little time to discuss much. It would be nice to understand what options are available and pros/cons discussed.***
>
> *- Patient*

> ***I get flustered and then can't remember what I want to say. Also, we often see a registrar and not actual oncologist so it's hard to get a relationship going and any continuity of care.***
>
> *- Patient*

Addressing these challenges requires care models that provide sufficient time, personalised guidance, and ongoing patient–clinician relationships, ensuring that equitable access extends beyond treatments to meaningful, informed engagement in care.

Disparities in access to ABC care are not unique to New Zealand, with gaps widening globally[8]. In New Zealand, the healthcare system is funded publicly with an option to access private healthcare usually through user pays-funded healthcare insurance. Public and private systems each have their limitations. Public care can be affected by system constraints such as long hospital wait times for infusion-administered treatments, limited clinic capacity, staffing shortages, and restricted access to certain therapies or advanced treatment options that are available in other countries. These factors can lead to delays in diagnosis, treatment initiation, and continuity of care, increasing the burden on patients and their families. More convenient routes of administration—such as oral or subcutaneous therapies—can help reduce wait times, clinic visits, and logistical and financial burden, supporting adherence, improving patient experience[180,181], and potentially enhancing survival outcomes. Private care may provide faster access in some areas but can restrict access to publicly funded support services:

> ***There are gaps between the public and private sector where private patients are unable to access breast care nurses employed in the public sector.***
>
> *- Patient*

> ***When I was in the public system, we were able to get back cost for our travel. It would be good if this could happen while you are under private care as we still have to travel as far and surely I am freeing up the public system for others.***
>
> *- Patient*

Strategies to improve equitable access within the healthcare system include expanding digital health initiatives, such as ABCpro (as discussed in *section 6.3.3*) which uses electronic PROMs to improve symptom management, quality of life, and patient participation in care. As stated in *section 3*, ABC affects women regardless of where they live, telehealth initiatives can improve access and act as care equalisers, particularly for rural populations.

Telehealth initiatives can also help to reduce high out-of-pocket costs and improve severe financial toxicity across all income settings[182]. The ABC Global Alliance have specified that legal and workplace protections must be introduced in the coming decade to protect the right to work, enable continued employment and support flexible, accommodating workplace environments for people living with ABC and their caregivers [183]. A 2019 Portuguese study[184] found that a subsidised part-time work scheme for working-age women with ABC would save the government money while by cutting productivity losses, demonstrating the benefits of labour law changes that allow flexible work for ABC patients. The majority of women with ABC in our survey had taken time off work to attend medical appointments or get treatment (Figure 6.16)—almost half of whom had to take unpaid leave (Table 6.4). The difficulty balancing treatment with personal and professional responsibilities and the impact of lost income and increased financial pressure for many patients and their families highlights the importance of workplace accommodations and legal protections for employees with ABC. Beyond workplace and legal protections, equitable health coverage policies through income and disability support, social and supportive services, and anti discrimination policies, will ensure people with ABC receive meaningful support.

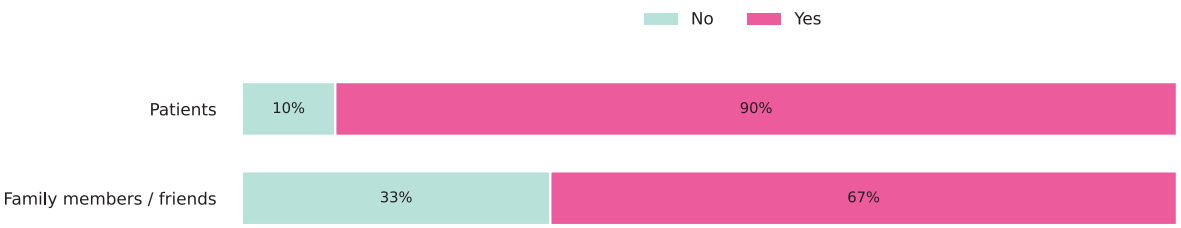

Figure 6.16 Patients' responses to the question: "Have you (or a family member/friend) had to take time off work in order to go to (or take you to) medical appointments or get treatment?"

	Patients taking time off work (n = 94)
Paid leave	68%
Unpaid leave	46%

Table 6.4 Patients' responses to the question: "If you took time off work to attend medical appointment or get treatment, was it paid or unpaid leave?"

Many of the challenges faced by patients in New Zealand reflect the actionable priorities identified by the ABC Global Alliance in their 2025–2035 Global Charter[8]; illustrating that a need for coordinated action, both locally and globally, to see meaningful improvements in ABC care over the coming decade and ensure no patient ever feels abandoned.

In summary

- Most clinicians in our survey recognised oligometastatic patients as being different from other ABC patients.
- The majority of clinicians in our survey discuss most *de novo* patients at MDM. Most clinicians present fewer than a quarter of their recurrent patients at MDM.
- 82% of patients received systemic therapy for ABC; their median survival was 26 months.
- Patients who received systemic treatment were less likely to be older (70+), have visceral metastases and / or triple negative subtype, have recurrent ABC and/or shorter MFI (5-23 months).
- 60% of triple negative ABC patients received systemic therapy, as did 76% of HR−/HER2+ and 87-89% of HR+ patients (HR+/HER2+ and HR+/HER2−).
- 69% patients with ABC in our survey reported a good quality of life.
- ABC had a major financial impact: for patients in our survey, 75% of households were worse off, including 33% "a lot worse."
- Among patients in our survey, use of support services was high, with patient support organisation Sweet Louise and Facebook group Metavivors being used by most patients.

7. Appendix

Appendix A. Supplementary tables

Legacy regions				Newly added DHB regions
Auckland (from 1 June 2000) Auckland DHB Counties Manukau DHB Waitematā DHB	**Waikato (from 1 June 2005, retrospective data to 1991)** Waikato DHB	**Wellington (from 1 January 2010)** Wairarapa DHB Capital and Coast DHB Hutt Valley DHB	**Christchurch (from 15 June 2009)** Canterbury DHB West Coast DHB	**Other DHBs (from 1 January 2020)** Northland Bay of Plenty Lakes Tairāwhiti Taranaki MidCentral (Palmerston North) Hawke's Bay Whanganui Nelson-Marlborough South Canterbury Southland

Table A.1 Te Rēhita Mate Ūtaetae (Breast Cancer Foundation National Register) - Legacy regions and newly added DHB regions

	Total patients (n = 105)
Gender	
Female	100%
Male	0%
Age	
<44	13%
45-69	73%
70+	14%
Region	
North Island	***75%***
Auckland	22%
Wellington	13%
Rest of NI	30%
South Island	**25%**
Christchurch	10%
Rest of SI	15%
Ethnicity	
European	89%
Māori	6%
Other*	5%
Dependants	
Dependant children	22%
Dependant older people	11%
No dependants	61%
Accessing public or private healthcare	
Mainly public	70%
Mainly private	17%
Both public and private	12%

*Other is made up of all other ethnicities, including Pacific women. Pacific patients accounted for fewer than 6%, therefore specific numbers are not reported to protect confidentiality.

Table A.2 Demographic data for patients in our survey

	Total clinicians (n = 21)
Job title	
Medical Oncologist	62%
Radiation Oncologist	29%
Nurse	10%
Public vs private	
Mainly public system	67%
Mix of public and private	29%
Region	
North Island	80%
South Island	20%
Tumour streams treated	
Only breast cancer	24%
Other including colorectal, melanoma, lung, gastrointestinal, gynaecological	76%

Table A.3 Demographic data for ABC treating clinicians in our survey

Receptor status	Māori (n=665) % (95% CI)	Pacific (n=512) % (95% CI)	Asian (n=341) % (95% CI)	European/Other (n=3609) % (95% CI)	Total (n=5127) % (95% CI)
HR+/HER2-	62.7% (59.0-66.3)	61.9% (57.6-66.0)	61.6% (56.3-66.6)	63.4% (61.8-65.0)	63.1% (61.7-64.4)
HR+/HER2+	16.2% (13.6-19.2)	21.1% (17.8-24.8)	15.5% (12.1-19.8)	13.6% (12.5-14.8)	14.8% (13.9-15.8)
HR-/HER2+	9.3% (7.3-11.8)	11.3% (8.9-14.4)	9.4% (6.7-12.9)	6.9% (6.1-7.7)	7.8% (7.1-8.6)
Triple Negative	11.7% (9.5-14.4)	5.7% (4.0-8.0)	13.5% (10.3-17.5)	16.1% (14.9-17.3)	14.3% (13.4-15.3)

Table A.4 Receptor status of first breast cancer diagnosis by ethnicity (2005-2023)

	2000-2004, (n= 338)[1]	**2005-2009**, (n = 821)[1]	**2010-2015**, (n = 1,473)[1]	**2016-2020**, (n = 1,667)[1]	**2021-2023**, (n = 1,420)[1]	**Overall**, (n = 5,719)[1]
Ductal	293 (87%)	722 (88%)	1,307 (89%)	1,453 (87%)	1,198 (84%)	4,973 (87%)
Lobular	45 (13%)	99 (12%)	166 (11%)	214 (13%)	222 (16%)	746 (13%)

[1]n (%)

Table A.5 Proportion of invasive ductal and lobular breast cancer by year of metastatic diagnosis (2000-2023)

Characteristic	HR	95% CI	*p* value
Age at metastatic diagnosis			
70+	1.00	—	
<45	0.65	0.53, 0.80	**0.00**
45-54	0.65	0.55, 0.76	**0.00**
55-69	0.82	0.71, 0.96	**0.01**
Ethnicity			
European/Other	1.00	—	
Māori	1.01	0.84, 1.22	0.88
Pacific	1.14	0.93, 1.41	0.20
Asian	0.93	0.73, 1.18	0.55
Grade			
Grade 1	1.00	—	
Grade 2	1.37	1.06, 1.78	**0.02**
Grade 3	1.73	1.32, 2.27	**0.00**
Receptor status			
HR+/HER2-	1.00	—	
HR+/HER2+	0.91	0.76, 1.09	0.30
HR-/HER2+	0.77	0.58, 1.01	0.06
Triple Negative	1.05	0.87, 1.27	0.61
Number of first metastatic sites			
1	1.00	—	
2	1.42	1.23, 1.64	**0.00**
3+	1.87	1.59, 2.18	**0.00**
Systemic treatment			
No	1.00	—	
Yes	0.29	0.24, 0.34	**0.00**
MFI			
5-23 months	1.00	—	
24-59 months	0.77	0.66, 0.89	**0.00**
60-119 months	0.60	0.50, 0.72	**0.00**
≥120 months	0.49	0.39, 0.63	**0.00**

HR = Hazard Ratio, CI = Confidence Interval

Table A.6 Hazard ratios of all-cause mortality (ABC patients with recurrent disease, 2015-2020)

8. References

1. Breast Cancer Foundation NZ. *"I'm still here" Insights into living - and dying - with Advanced Breast Cancer in New Zealand*. Auckland, New Zealand. Breast Cancer Foundation NZ. 2018.

2. Coles CE, Earl H, Anderson BO, et al. The Lancet Breast Cancer Commission. *The Lancet*. 2024;403(10439):1895-1950. doi:10.1016/S0140-6736(24)00747-5

3. *Understanding the needs and views of patients living with Advanced Breast Cancer in New Zealand. Ipsos.*; (n.d.).

4. *Understanding the views of healthcare professionals treating Advanced Breast Cancer in New Zealand. Ipsos. (n.d.).*

5. Rajkumar SV, Richardson P, San Miguel JF. Guidelines for determination of the number of prior lines of therapy in multiple myeloma. *Blood*. 2015;126(7):921-922. doi:10.1182/blood-2015-05-647636

6. Hess LM, Li X, Wu Y, et al. Defining Treatment Regimens and Lines of Therapy Using Real-World Data in Oncology. *Future Oncol*. 2021;17(15):1865-1877. doi:10.2217/fon-2020-1041

7. Durston V, Mills S, Smith A, et al. Making Metastatic Breast Cancer Count. The Breast. 2024;74:103640. doi:10.1016/j.breast.2023.103640

8. Cardoso F, Ventura R, Attfield G, et al. Knowledge in Motion: A decade reviewed, a future defined – The ABC Global Alliance 2015–2025 Decade Report and 2025–2035 Global Charter. *The Breast*. 2025;84:104601. doi:10.1016/j.breast.2025.104601

9. Caswell-Jin JL, Sun LP, Munoz D, et al. Analysis of Breast Cancer Mortality in the US—1975 to 2019. *JAMA*. 2024;331(3):233. doi:10.1001/jama.2023.25881

10. The Breast Cancer Therapy Expert Group (BCTEG), Abraham J, Coleman R, et al. Use of cyclin-dependent kinase (CDK) 4/6 inhibitors for hormone receptor-positive, human epidermal growth factor receptor 2-negative, metastatic breast cancer: a roundtable discussion by The Breast Cancer Therapy Expert Group (BCTEG). *Breast Cancer Res Treat*. 2018;171(1):11-20. doi:10.1007/s10549-018-4783-1

11. Slamon DJ, Neven P, Chia S, et al. Overall Survival with Ribociclib plus Fulvestrant in Advanced Breast Cancer. *N Engl J Med*. 2020;382(6):514-524. doi:10.1056/NEJMoa1911149

12. Cardoso F, Paluch-Shimon S, Senkus E, et al. 5th ESO-ESMO international consensus guidelines for advanced breast cancer (ABC 5). *Ann Oncol*. 2020;31(12):1623-1649. doi:10.1016/j.annonc.2020.09.010

13. National Institute for Health and Care Excellence (NICE). Trastuzumab deruxtecan for treating HER2-positive unresectable or metastatic breast cancer after 2 or more anti-HER2 therapies. May 26, 2021. Accessed September 22, 2025. https://www.nice.org.uk/guidance/ta704#:~:text=Trastuzumab%20deruxtecan%20for%20treating%20HER2-positive%20unresectable%20or,*%20TA704.%20*%20Published:%2026%20May%202021

14. Hurvitz SA, Hegg R, Chung WP, et al. Trastuzumab deruxtecan versus trastuzumab emtansine in patients with HER2-positive metastatic breast cancer: updated results from DESTINY-Breast03, a randomised, open-label, phase 3 trial. *The Lancet*. 2023;401(10371):105-117. doi:10.1016/S0140-6736(22)02420-5

15. Ding N, Hermans KEPE, Van Nijnatten TJA, et al. Overall survival of patients with *de Novo* HER2-positive metastatic breast cancer in the Netherlands from 2008 to 2017: A population-based cohort study of systemically treated patients. *Eur J Cancer*. 2025;222:115475. doi:10.1016/j.ejca.2025.115475

16. Michel LL, Feisst M, Thewes V, et al. Overall Survival in Metastatic Breast Cancer Patients: Real-World Data from 1,000 Patients Treated at the NCT Heidelberg between 2014 and 2022. *Breast Care*. Published online October 9, 2025:1-13. doi:10.1159/000548610

17. Carausu M, Carton M, Diéras V, et al. Association of Endocrine Therapy for HR+/ ERBB2 + Metastatic Breast Cancer With Survival Outcomes. *JAMA Netw Open*. 2022;5(12):e2247154. doi:10.1001/jamanetworkopen.2022.47154

18. Griguolo G, Bottosso M, Crema A, et al. Exceptional responses to systemic treatment in metastatic breast cancer: clinical features and long-term outcomes. *Eur J Cancer*. 2025;219:115321. doi:10.1016/j.ejca.2025.115321

19. Haji F, Hurvitz SA. Can Women With HER2-Positive Metastatic Breast Cancer Be Cured? *Clin Breast Cancer*. 2021;21(6):526-531. doi:10.1016/j.clbc.2021.06.012

20. STOP-HER2: Stopping Trastuzumab in HER2+ MBC. ClinicalTrials.gov identifier: NCT05721248. Updated August 07, 2025. Accessed January 25, 2026. https://clinicaltrials.gov/study/NCT05721248

21. Basch E, Deal AM, Kris MG, et al. Symptom Monitoring With Patient-Reported Outcomes During Routine Cancer Treatment: A Randomized Controlled Trial. *J Clin Oncol*. 2016;34(6):557-565. doi:10.1200/JCO.2015.63.0830

22. Basch E, Schrag D, Henson S, et al. Effect of Electronic Symptom Monitoring on Patient-Reported Outcomes Among Patients With Metastatic Cancer: A Randomized Clinical Trial. *JAMA*. 2022;327(24):2413. doi:10.1001/jama.2022.9265

23. Cardoso F, Spence D, Mertz S, et al. Global analysis of advanced/metastatic breast cancer: Decade report (2005–2015). *The Breast*. 2018;39:131-138. doi:10.1016/j.breast.2018.03.002

24. Karsten MM, Gebert P, Pross T, et al. Abstract GS1-06: PRO B - a superiority randomized controlled trial evaluating the effects of symptom monitoring in metastatic breast cancer patients. *Clin Cancer Res*. 2025;31(12_Supplement):GS1-06-GS1-06. doi:10.1158/1557-3265.SABCS24-GS1-06

25. Cardoso F, Paluch-Shimon S, Schumacher-Wulf E, et al. 6th and 7th International consensus guidelines for the management of advanced breast cancer (ABC guidelines 6 and 7). *The Breast*. 2024;76:103756. doi:10.1016/j.breast.2024.103756

26. Hiensch AE, Depenbusch J, Schmidt ME, et al. Supervised, structured and individualized exercise in metastatic breast cancer: a randomized controlled trial. *Nat Med*. 2024;30(10):2957-2966. doi:10.1038/s41591-024-03143-y

27. Pharmac, NZ. Decision to fund oncology, multiple sclerosis and respiratory treatments. October 7, 2019. Accessed October 15, 2025. https://pharmac.govt.nz/news-and-resources/consultations-and-decisions/decision-to-fund-oncology-multiple-sclerosis-and-respiratory-treatments

28. Pharmac, NZ. Decision to fund two new cancer treatments: olaparib and fulvestrant. December 5, 2019. Accessed October 15, 2025. https://pharmac.govt.nz/news-and-resources/consultations-and-decisions/decision-to-fund-two-new-cancer-treatments-olaparib-and-fulvestrant

29. Pharmac, NZ. Decision to fund palbociclib (Ibrance) for advanced breast cancer. March 5, 2020. Accessed October 15, 2025. https://pharmac.govt.nz/news-and-resources/consultations-and-decisions/decision-to-fund-palbociclib-ibrance-for-advanced-breast-cancer

30. Pharmac, NZ. Decision to fund treatments for breast cancer and leukaemia. February 14, 2024. https://pharmac.govt.nz/news-and-resources/consultations-and-decisions/decision-to-fund-treatments-for-breast-cancer-and-leukaemia

31. Pharmac, NZ. First cancer medicine decision following Pharmac funding boost. September 9, 2024. Accessed October 15, 2025. Accessed October 15, 2025. https://pharmac.govt.nz/news-and-resources/news/first-cancer-medicine-decision-following-pharmac-funding-boost#:~:text=Pharmac%20has%20decided%20to%20widen,bladder%20cancer%2C%20and%20Hodgkin%20lymphoma.

32. Pharmac, NZ. Pharmac funds more cancer and respiratory medicines for New Zealanders. December 6, 2024. https://pharmac.govt.nz/news-and-resources/news/2024-12-06-pharmac-funds-more-cancer-and-respiratory-medicines-for-new-zealanders

33. Kuper-Hommel MJJ, Little Z, Gautier A. New Zealand experience with implementation of the ESO-ESMO consensus guidelines for advanced breast cancer-report of achievements and lessons learned. The Breast. 2022;63:108-112. doi:10.1016/j.breast.2022.03.017

34. Ricci-Cabello I, Vásquez-Mejía A, Canelo-Aybar C, et al. Adherence to breast cancer guidelines is associated with better survival outcomes: a systematic review and meta-analysis of observational studies in EU countries. *BMC Health Serv Res*. 2020;20(1):920. doi:10.1186/s12913-020-05753-x

35. Pharmac, NZ. *Annual Review 2005*. Pharmaceutical Management Agency; 2005. https://www.pharmac.govt.nz/assets/annual-review-2005.pdf

36. Lao C, Lawrenson R, Edwards M, et al. Treatment and survival of Asian women diagnosed with breast cancer in New Zealand. *Breast Cancer Res Treat*. 2019;177(2):497-505. doi:10.1007/s10549-019-05310-z

37. Taparra K, Qu V, Pollom E. Disparities in Survival and Comorbidity Burden Between Asian and Native Hawaiian and Other Pacific Islander Patients With Cancer. *JAMA Netw Open*. 2022;5(8):e2226327. doi:10.1001/jamanetworkopen.2022.26327

38. Bartmann C, Diessner J, Blettner M, et al. Factors influencing the development of visceral metastasis of breast cancer: A retrospective multi-center study. *The Breast*. 2017;31:66-75. doi:10.1016/j.breast.2016.10.016

39. Kesireddy M, Elsayed L, Shostrom VK, et al. Overall Survival and Prognostic Factors in Metastatic Triple-Negative Breast Cancer: A National Cancer Database Analysis. Cancers. 2024;16(10):1791. doi:10.3390/cancers16101791

40. Lord S, Daniels B, Kiely BE, et al. Long term risk of distant metastasis in women with non-metastatic breast cancer and survival after metastasis detection: a population-based linked health records study. *Med J Aust*. 2022;217(8):402-409. doi:10.5694/mja2.51687

41. Taskindoust M, Thomas SM, Sammons SL, et al. Survival Outcomes Among Patients with Metastatic Breast Cancer: Review of 47,000 Patients. *Ann Surg Oncol*. 2021;28(12):7441-7449. doi:10.1245/s10434-021-10227-3

42. Seung SJ, Traore AN, Pourmirza B, et al. A Population-Based Analysis of Breast Cancer Incidence and Survival by Subtype in Ontario Women. *Curr Oncol*. 2020;27(2):191-198. doi:10.3747/co.27.5769

43. Grinda T, Antoine A, Jacot W, et al. Evolution of overall survival and receipt of new therapies by subtype among 20 446 metastatic breast cancer patients in the 2008-2017 ESME cohort. E*SMO Open*. 2021;6(3):100114. doi:10.1016/j.esmoop.2021.100114

44. Cazzaniga ME, Pronzato P, Amoroso D, et al. Clinical Outcomes of HER2-Negative Metastatic Breast Cancer Patients in Italy in the Last Decade: Results of the GIM 13-AMBRA Study. *Cancers*. 2023;16(1):117. doi:10.3390/cancers16010117

45. Weide R, Feiten S, Friesenhahn V, et al. Metastatic breast cancer: prolongation of survival in routine care is restricted to hormone-receptor- and Her2-positive tumors. *SpringerPlus*. 2014;3(1):535. doi:10.1186/2193-1801-3-535

46. Valachis A, Carlqvist P, Ma Y, et al. Overall survival of patients with metastatic breast cancer in Sweden: a nationwide study. *Br J Cancer*. 2022;127(4):720-725. doi:10.1038/s41416-022-01845-z

47. Breast Cancer Foundation NZ. *30,000 voices: Informing a better future for breast cancer in Aotearoa New Zealand*. Auckland, New Zealand. Breast Cancer Foundation NZ. 2022

48. Meegdes M, Geurts SME, Erdkamp FLG, et al. Real-world time trends in overall survival, treatments and patient characteristics in HR+/HER2− metastatic breast cancer: an observational study of the SONABRE Registry. *Lancet Reg Health - Eur*. 2023;26:100573. doi:10.1016/j.lanepe.2022.100573

49. Müller V, Hein A, Hartkopf AD, et al. Occurrence and characteristics of patients with *de novo* advanced breast cancer according to patient and tumor characteristics – A retrospective analysis of a real world registry. *Eur J Cancer.* 2022;172:13-21. doi:10.1016/j.ejca.2022.05.015

50. BreastScreen Aotearoa interactive coverage data tool. Accessed September 18, 2025. https://tewhatuora.shinyapps.io/nsu-bsa-coverage/

51. Morgan E, O'Neill C, Shah R, et al. Metastatic recurrence in women diagnosed with non-metastatic breast cancer: a systematic review and meta-analysis. *Breast Cancer Res*. 2024;26(1):171. doi:10.1186/s13058-024-01881-y

52. Public Health Unit, Taranaki District Health Board. *Summary Report Health Equity Assessment: Breast Screening Participation in Taranaki*. Taranaki DHB; 2019. https://www.tdhb.org.nz/services/public_health/documents/HEAT-Breast-Screening-Summary-Report.pdf

53. National Screening Unit, Te Whatu Ora. *New Breast Cancer Diagnoses and Treatments, 2020*.; 2023.

54. Health New Zealand, Te Whatu Ora. Extending the age for free breast screening. Extending the age for free breast screening. https://www.tewhatuora.govt.nz/health-services-and-programmes/breastscreen-aotearoa/extending-the-age-for-free-breast-screening

55. Lawrenson R, Lao C, Campbell I, et al. The impact of different tumour subtypes on management and survival of New Zealand women with Stage I-III breast cancer. *N Z Med J*. 2018;131(1475):51-60.

56. Pedersen RN, Esen BÖ, Mellemkjær L, et al. The Incidence of Breast Cancer Recurrence 10-32 Years After Primary Diagnosis. *JNCI J Natl Cancer Inst*. 2022;114(3):391-399. doi:10.1093/jnci/djab202

57. Colleoni M, Sun Z, Price KN, et al. Annual Hazard Rates of Recurrence for Breast Cancer During 24 Years of Follow-Up: Results From the International Breast Cancer Study Group Trials I to V. *J Clin Oncol*. 2016;34(9):927-935. doi:10.1200/JCO.2015.62.3504

58. La Verde N, Collovà E, Blasi L, et al. Overall Survival in Metastatic Breast Cancer Patients in the Third Millennium: Results of the COSMO Study. *Clin* Breast Cancer. 2021;21(5):e489-e496. doi:10.1016/j.clbc.2020.11.001

59. Jochelson M, Hayes DF, Ganz PA. Surveillance and Monitoring in Breast Cancer Survivors: Maximizing Benefit and Minimizing Harm. *Am Soc Clin Oncol Educ Book*. 2013;(33):e13-e18. doi:10.14694/EdBook_AM.2013.33.e13

60. Pan H, Gray R, Braybrooke J, et al. 20-Year Risks of Breast-Cancer Recurrence after Stopping Endocrine Therapy at 5 Years. *N Engl J Med*. 2017;377(19):1836-1846. doi:10.1056/NEJMoa1701830

61. Loibl S, André F, Bachelot T, et al. Early breast cancer: ESMO Clinical Practice Guideline for diagnosis, treatment and follow-up. *Ann Oncol*. 2024;35(2):159-182. doi:10.1016/j.annonc.2023.11.016

62. Khatcheressian JL, Hurley P, Bantug E, et al. Breast Cancer Follow-Up and Management After Primary Treatment: American Society of Clinical Oncology Clinical Practice Guideline Update. *J Clin Oncol*. 2013;31(7):961-965. doi:10.1200/JCO.2012.45.9859

63. Swinnen J, Keupers M, Soens J, et al. Breast imaging surveillance after curative treatment for primary non-metastasised breast cancer in non-high-risk women: a systematic review. *Insights Imaging*. 2018;9(6):961-970. doi:10.1007/s13244-018-0667-5

64. Ghezzi P. Impact of Follow-up Testing on Survival and Health-Related Quality of Life in Breast Cancer Patients: A Multicenter Randomized Controlled Trial. *JAMA*. 1994;271(20):1587. doi:10.1001/jama.1994.03510440047031

65. Xia L, Lai J, Huang D, et al. Comparing the diagnostic efficacy of [^{18} F]FDG PET/CT and [^{18} F]FDG PET/MRI for detecting bone metastases in breast cancer: a meta-analysis. *Radiol Oncol*. 2023;57(3):299-309. doi:10.2478/raon-2023-0037

66. Bruckmann NM, Kirchner J, Umutlu L, et al. Prospective comparison of the diagnostic accuracy of 18F-FDG PET/MRI, MRI, CT, and bone scintigraphy for the detection of bone metastases in the initial staging of primary breast cancer patients. *Eur Radiol*. 2021;31(11):8714-8724. doi:10.1007/s00330-021-07956-0

67. Henry LN, Hayes DF, Ramsey SD, et al. Promoting Quality and Evidence-Based Care in Early-Stage Breast Cancer Follow-up. *JNCI J Natl Cancer Inst*. 2014;106(4):dju034-dju034. doi:10.1093/jnci/dju034

68. Cheun JH, Chung S, Han JH, et al. Surveillance for Distant Metastasis in Breast Cancer Patients Who Underwent Contemporary Management: A Report from the Korean Breast Cancer Society Survivor Research Group. *Ann Surg Oncol*. 2024;31(10):6774-6785. doi:10.1245/s10434-024-15665-3

69. Shin J, Kim JY, Oh JM, et al. Comprehensive Clinical Characterization of Decade-Long Survivors of Metastatic Breast Cancer. *Cancers*. 2023;15(19):4720. doi:10.3390/cancers15194720

70. Avery J, Thomas R, Howell D, et al. Empowering Cancer Survivors in Managing Their Own Health: A Paradoxical Dynamic Process of Taking and Letting Go of Control. *Qual Health Res*. 2023;33(5):412-425. doi:10.1177/10497323231158629

71. Chopra I, Chopra A. Follow-up care for breast cancer survivors: improving patient outcomes. *Patient Relat Outcome Meas*. 2014;5:71-85. doi:10.2147/PROM.S49586

72. Jiang H, Dong Y, Zong W, et al. The relationship among psychosocial adaptation, medication adherence and quality of life in breast cancer women with adjuvant endocrine therapy. *BMC Womens Health*. 2022;22(1):135. doi:10.1186/s12905-022-01722-0

73. Simon R, Latreille J, Matte C, et al. Adherence to adjuvant endocrine therapy in estrogen receptor–positive breast cancer patients with regular follow-up. *Can J Surg*. 2014;57(1):26-32. doi:10.1503/cjs.006211

74. Eliassen FM, Blåfjelldal V, Helland T, et al. Importance of endocrine treatment adherence and persistence in breast cancer survivorship: a systematic review. *BMC Cancer*. 2023;23(1):625. doi:10.1186/s12885-023-11122-8

75. De Rose F, Meduri B, De Santis MC, et al. Rethinking breast cancer follow-up based on individual risk and recurrence management. *Cancer Treat Rev*. 2022;109:102434. doi:10.1016/j.ctrv.2022.102434

76. Hojo T, Masuda N, Mizutani T, et al. Intensive vs. Standard Post-Operative Surveillance in High-Risk Breast Cancer Patients (INSPIRE): Japan Clinical Oncology Group Study JCOG1204. *Jpn J Clin Oncol*. 2015;45(10):983-986. doi:10.1093/jjco/hyv110

77. Klaassen-Dekker A, Drossaert CHC, Van Maaren MC, et al. Personalized surveillance and aftercare for non-metastasized breast cancer: the NABOR study protocol of a multiple interrupted time series design. *BMC Cancer*. 2023;23(1):1112. doi:10.1186/s12885-023-11504-y

78. Giannotti E, Pasculli M, Sella T, et al. ESR Essentials: post-treatment breast cancer surveillance from mammography to a more personalised approach-practice recommendations by the European Society of Breast Imaging. *Eur Radiol*. Published online August 14, 2025. doi:10.1007/s00330-025-11819-3

79. Shaw JA, Page K, Wren E, et al. Serial Postoperative Circulating Tumor DNA Assessment Has Strong Prognostic Value During Long-Term Follow-Up in Patients With Breast Cancer. *JCO Precis Oncol*. 2024;(8):e2300456. doi:10.1200/PO.23.00456

80. Królewska-Daszczyńska P, Englisz A, Morawiec ML, et al. The assessment of breast cancer biomarkers in diagnosis, prognosis and treatment monitoring: integrated analysis. *J Cancer Res Clin Oncol*. 2025;151(8):233. doi:10.1007/s00432-025-06271-1

81. Merloni F, Palleschi M, Casadei C, et al. Oligometastatic breast cancer and metastasis-directed treatment: an aggressive multimodal approach to reach the cure. *Ther Adv Med Oncol*. 2023;15:17588359231161412. doi:10.1177/17588359231161412

82. Pujari L, Suresh A, Chowdhury Z, et al. Outcomes of *De Novo* Oligometastatic Breast Cancer Treated With Surgery of Primary and Metastasis Directed Radiotherapy. *Am J Clin Oncol*. 2024;47(12):566-573. doi:10.1097/COC.0000000000001129

83. Boland MR, Al-Maksoud A, Ryan ÉJ, et al. Value of a 21-gene expression assay on core biopsy to predict neoadjuvant chemotherapy response in breast cancer: systematic review and meta-analysis. *Br J Surg*. 2021;108(1):24-31. doi:10.1093/bjs/znaa048

84. Drobniene M, Breimelyte D, Sadzeviciene I, et al. Comprehensive genomic profiling can predict response to neoadjuvant chemotherapy in triple-negative breast cancer. *The Breast*. 2025;80:104423. doi:10.1016/j.breast.2025.104423

85. NICE: National Institute for Health and Care Excellence. *Tumour Profiling Tests to Guide Adjuvant Chemotherapy Decisions in Early Breast Cancer*.; 2024. https://www.nice.org.uk/guidance/htg719

86. Prat A, Guarneri V, Pascual T, et al. Development and validation of the new HER2DX assay for predicting pathological response and survival outcome in early-stage HER2-positive breast cancer. *eBioMedicine*. 2022;75:103801. doi:10.1016/j.ebiom.2021.103801

87. Nielsen TO, Leung SCY, Rimm DL, et al. Assessment of Ki67 in Breast Cancer: Updated Recommendations From the International Ki67 in Breast Cancer Working Group. *JNCI J Natl Cancer Inst*. 2021;113(7):808-819. doi:10.1093/jnci/djaa201

88. Kim H, Kang J, Park H, et al. Comparing the Combination of Clinical Risk and Ki-67 Using EndoPredict as an Alternative to Multigene Assays in Prognostic Evaluation of Breast Cancer. Clin *Breast Cancer.* 2025;25(5):e613-e621.e1. doi:10.1016/j.clbc.2025.02.017

89. Early Breast Cancer Trialists' Collaborative Group. Reductions in recurrence in women with early breast cancer entering clinical trials between 1990 and 2009: a pooled analysis of 155 746 women in 151 trials. *The Lancet*. 2024;404(10461):1407-1418. doi:10.1016/S0140-6736(24)01745-8

90. Malmgren J, Hurlbert M, Atwood M, et al. Examination of a paradox: recurrent metastatic breast cancer incidence decline without improved distant disease survival: 1990–2011. *Breast Cancer Res Treat*. 2019;174(2):505-514. doi:10.1007/s10549-018-05090-y

91. Lao C, Kuper-Hommel M, Elwood M, et al. Metastatic relapse of stage I–III breast cancer in New Zealand. *Cancer Causes Control*. 2021;32(7):753-761. doi:10.1007/s10552-021-01426-0

92. Metcalf S, Evans J, Priest G. PHARMAC funding of 9-week concurrent trastuzumab (Herceptin for HER2-positive early breast cancer. *N Z Med J*. 2007;120(1256). http://www.nzma.org.nz/journal/120-1256/2593/

93. Pharmac, NZ. Approval of proposal to widen funded access to docetaxel. https://www.pharmac.govt.nz/assets/notification-2011-06-10-docetaxel.pdf

94. James M, Munro PL, Adams G, et al. Economics and Workforce Committee. The changing radiation oncology landscape in New Zealand. *J Med Imaging Radiat Oncol*. 2022;66(5):694-700. doi:10.1111/1754-9485.13402

95. Early Breast Cancer Trialists' Collaborative Group (EBCTG). Relevance of breast cancer hormone receptors and other factors to the efficacy of adjuvant tamoxifen: patient-level meta-analysis of randomised trials. *The Lancet*. 2011;378(9793):771-784. doi:10.1016/S0140-6736(11)60993-8

96. Early Breast Cancer Trialists' Collaborative Group (EBCTG). Aromatase inhibitors versus tamoxifen in early breast cancer: patient-level meta-analysis of the randomised trials. *The Lancet*. 2015;386(10001):1341-1352. doi:10.1016/S0140-6736(15)61074-1

97. Johnston SRD, Harbeck N, Hegg R, et al. Abemaciclib Combined With Endocrine Therapy for the Adjuvant Treatment of HR+, HER2−, Node-Positive, High-Risk, Early Breast Cancer (monarchE). *J Clin Oncol*. 2020;38(34):3987-3998. doi:10.1200/JCO.20.02514

98. Johnston SRD, Toi M, O'Shaughnessy J, et al. Abemaciclib plus endocrine therapy for hormone receptor-positive, HER2-negative, node-positive, high-risk early breast cancer (monarchE): results from a preplanned interim analysis of a randomised, open-label, phase 3 trial. *Lancet Oncol*. 2023;24(1):77-90. doi:10.1016/S1470-2045(22)00694-5

99. Slamon D, Lipatov O, Nowecki Z, et al. Ribociclib plus Endocrine Therapy in Early Breast Cancer. *N Engl J Med*. 2024;390(12):1080-1091. doi:10.1056/NEJMoa2305488

100. Australian Government Department of Health. New hope to treat women with early breast cancer. April 28, 2024 Accessed December 12, 2025. https://www.health.gov.au/ministers/the-hon-mark-butler-mp/media/new-hope-to-treat-women-with-early-breast-cancer

101. National Institute for Health and Care Excellence (NICE). *Ribociclib with an Aromatase Inhibitor for Adjuvant Treatment of Hormone Receptor-Positive HER2-Negative Early Breast Cancer at High Risk of Recurrence (TA1086)*.; 2025. www.nice.org.uk/guidance/ta1086

102. Burstein HJ, Temin S, Anderson H, et al. Adjuvant Endocrine Therapy for Women With Hormone Receptor–Positive Breast Cancer: American Society of Clinical Oncology Clinical Practice Guideline Focused Update. *J Clin Oncol*. 2014;32(21):2255-2269. doi:10.1200/JCO.2013.54.2258

103. Seneviratne S, Campbell I, Scott N, et al. Adherence to adjuvant endocrine therapy: Is it a factor for ethnic differences in breast cancer outcomes in New Zealand? *The Breast*. 2015;24(1):62-67. doi:10.1016/j.breast.2014.11.011

104. Robinson B, Dijkstra B, Davey V, et al. Adherence to Adjuvant Endocrine Therapy in Christchurch Women with Early Breast Cancer. *Clin Oncol*. 2018;30(1):e9-e15. doi:10.1016/j.clon.2017.10.015

105. Breast Cancer Foundation NZ. About myHT guide. Accessed September 19, 2025. https://www.breastcancerfoundation.org.nz/support/myht-about

106. Gerke O, Naghavi-Behzad M, Nygaard ST, et al. Diagnosing Bone Metastases in Breast Cancer: A Systematic Review and Network Meta-Analysis on Diagnostic Test Accuracy Studies of 2-[18F]FDG-PET/CT, 18F-NaF-PET/CT, MRI, Contrast-Enhanced CT, and Bone Scintigraphy. *Semin Nucl Med*. 2025;55(1):137-151. doi:10.1053/j.semnuclmed.2024.10.008

107. Cook GJR. Imaging of Bone Metastases in Breast Cancer. *Semin Nucl Med*. 2022;52(5):531-541. doi:10.1053/j.semnuclmed.2022.01.005

108. Pesapane F, Downey K, Rotili A, et al Imaging diagnosis of metastatic breast cancer. *Insights Imaging*. 2020;11(1):79. doi:10.1186/s13244-020-00885-4

109. Mathew A, Rajagopal P, Villgran V, et al. Distinct Pattern of Metastases in Patients with Invasive Lobular Carcinoma of the Breast. *Geburtshilfe Frauenheilkd*. 2017;77(06):660-666. doi:10.1055/s-0043-109374

110. Andrade M., Bonadio RR, Diz MDPE, et al. Visceral crisis in metastatic breast cancer: an old concept with new perspectives. *Clinics*. 2024;79:100362. doi:10.1016/j.clinsp.2024.100362

111. Schumacher JR, Neuman HB, Yu M, et al. Surveillance Imaging vs Symptomatic Recurrence Detection and Survival in Stage II-III Breast Cancer (AFT-01). *JNCI J Natl Cancer Inst*. 2022;114(10):1371-1379. doi:10.1093/jnci/djac131

112. Seneviratne S, Lawrenson R, Harvey V, et al. Stage of breast cancer at diagnosis in New Zealand: impacts of socio-demographic factors, breast cancer screening and biology. *BMC Cancer*. 2016;16(1):129. doi:10.1186/s12885-016-2177-5

113. Fallowfield L, Starkings R, Palmieri C, et al. Living with metastatic breast cancer (LIMBER): experiences, quality of life, gaps in information, care and support of patients in the UK. *Support Care Cancer*. 2023;31(8):459. doi:10.1007/s00520-023-07928-8

114. MInistry of Health. *Health and Independence Report 2024 – Te Pūrongo Mō Te Hauora Me Te Tū Motuhake 2024*. Wellington, New Zealand: Ministry of Health; 2025.

115. DiMarco R, Guinigundo AS, Valdueza C. Uncovering and Addressing Implicit Bias in Oncology. *J Adv Pract Oncol*. 2023;14(3):195-199. doi:10.6004/jadpro.2023.14.3.3

116. Aurilio G, Disalvatore D, Pruneri G, et al. A meta-analysis of oestrogen receptor, progesterone receptor and human epidermal growth factor receptor 2 discordance between primary breast cancer and metastases. *Eur J Cancer*. 2014;50(2):277-289. doi:10.1016/j.ejca.2013.10.004

117. Dowling GP, Keelan S, Cosgrove NS, et al. Receptor Discordance in Metastatic Breast Cancer; a review of clinical and genetic subtype alterations from primary to metastatic disease. *Breast Cancer Res Treat*. 2024;207(3):471-476. doi:10.1007/s10549-024-07431-6

118. Schrijver WAME, Suijkerbuijk KPM, Van Gils CH, et al. Receptor Conversion in Distant Breast Cancer Metastases: A Systematic Review and Meta-analysis. *JNCI J Natl Cancer Inst*. 2018;110(6):568-580. doi:10.1093/jnci/djx273

119. Pusztai L, Rozenblit M, Dubsky P, et al. *De Novo* Oligometastatic Breast Cancer. *J Clin Oncol*. 2023;41(34):5237-5241. doi:10.1200/JCO.23.00911

120. Breast Cancer Foundation NZ. Third New Zealand Consensus Guidelines for Advanced Breast Cancer (ABC-NZ3). Published online (September 2025).

121. Cottu P, Cheeseman S, Hall P, et al. Attrition between lines of therapy and real-world outcomes of patients with HER2-positive metastatic breast cancer in Europe: a cohort study leveraging electronic medical records. *Breast Cancer Res Treat*. 2025;209(2):419-430. doi:10.1007/s10549-024-07506-4

122. Ibragimova KIE, Geurts SME, Meegdes M, et al. Outcomes for the first four lines of therapy in patients with HER2-positive advanced breast cancer: results from the SONABRE registry. *Breast Cancer Res Treat*. 2023;198(2):239-251. doi:10.1007/s10549-022-06832-9

123. Ang E, Han DY, Wilson S. Survival Outcomes and Care Equity among Patients with Advanced Breast Cancer in Auckland, New Zealand. *J Cancer Epidemiol*. Published online 2022:1-7. doi:10.1155/2022/7116040

124. Cortes J, Rugo HS, Cescon DW, et al. Pembrolizumab plus Chemotherapy in Advanced Triple-Negative Breast Cancer. *N Engl J Med*. 2022;387(3):217-226. doi:10.1056/NEJMoa2202809

125. Kaufman PA, Hurvitz SA, O'Shaughnessy J, et al. Baseline characteristics and first-line treatment patterns in patients with HER2-positive metastatic breast cancer in the SystHERs registry. *Breast Cancer Res Treat*. 2021;188(1):179-190. doi:10.1007/s10549-021-06103-z

126. Lobbezoo DJA, Van Kampen RJW, Voogd AC, et al. In real life, one-quarter of patients with hormone receptor-positive metastatic breast cancer receive chemotherapy as initial palliative therapy: a study of the Southeast Netherlands Breast Cancer Consortium. *Ann Oncol*. 2016;27(2):256-262. doi:10.1093/annonc/mdv544

127. Finn RS, Martin M, Rugo HS, et al. Palbociclib and Letrozole in Advanced Breast Cancer. *N Engl J Med*. 2016;375(20):1925-1936. doi:10.1056/NEJMoa1607303

128. Cristofanilli M, Rugo HS, Im SA, et al. Overall Survival with Palbociclib and Fulvestrant in Women with HR+/HER2− ABC: Updated Exploratory Analyses of PALOMA-3, a Double-blind, Phase III Randomized Study. *Clin Cancer Res*. 2022;28(16):3433-3442. doi:10.1158/1078-0432.CCR-22-0305

129. Rugo HS, Brufsky A, Liu X, et al. Real-world study of overall survival with palbociclib plus aromatase inhibitor in HR+/HER2− metastatic breast cancer. *Npj Breast Cancer.* 2022;8(1):114. doi:10.1038/s41523-022-00479-x

130. On behalf of the SONIA study steering committee, Van Ommen-Nijhof A, Konings IR, et al. Selecting the optimal position of CDK4/6 inhibitors in hormone receptor-positive advanced breast cancer – the SONIA study: study protocol for a randomized controlled trial. *BMC Cancer*. 2018;18(1):1146. doi:10.1186/s12885-018-4978-1

131. Lu YS, Mahidin EIBM, Azim H, et al. Final Results of RIGHT Choice: Ribociclib Plus Endocrine Therapy Versus Combination Chemotherapy in Premenopausal Women With Clinically Aggressive Hormone Receptor–Positive/Human Epidermal Growth Factor Receptor 2–Negative Advanced Breast Cancer. *J Clin Oncol*. 2024;42(23):2812-2821. doi:10.1200/JCO.24.00144

132. Ditsch N, Untch M, Fasching PA, et al. ABC7 Consensus: Assessment by a German Group of Experts. *Breast Care*. 2024;19(2):116-128. doi:10.1159/000535997

133. Brufsky A, Maculaitis MC, Kopenhafer L, et al. Identifying drivers of first-line HR+/HER2− metastatic breast cancer treatment choices. *Future Oncol*. 2024;20(29):2165-2177. doi:10.1080/14796694.2024.2350294

134. Onesti CE, Jerusalem G. CDK4/6 inhibitors in breast cancer: differences in toxicity profiles and impact on agent choice. A systematic review and meta-analysis. *Expert Rev Anticancer Ther*. 2021;21(3):283-298. doi:10.1080/14737140.2021.1852934

135. Braal CL, Jongbloed EM, Wilting SM, et al. Inhibiting CDK4/6 in Breast Cancer with Palbociclib, Ribociclib, and Abemaciclib: Similarities and Differences. *Drugs*. 2021;81(3):317-331. doi:10.1007/s40265-020-01461-2

136. Hua X, Bi XW, Zhao JL, et al. Trastuzumab Plus Endocrine Therapy or Chemotherapy as First-line Treatment for Patients with Hormone Receptor–Positive and HER2-Positive Metastatic Breast Cancer (SYSUCC-002). *Clin Cancer Res*. 2022;28(4):637-645. doi:10.1158/1078-0432.CCR-21-3435

137. Martin AP, Downing J, Cochrane M, et al. Trastuzumab uptake in HER2-positive breast cancer patients: a systematic review and meta-analysis of observational studies. *Crit Rev Oncol Hematol*. 2018;130:92-107. doi:10.1016/j.critrevonc.2018.07.012

138. Mehta S, Xie J, Ionescu-Ittu R, et al. Real-World Treatment Patterns and Outcomes Following First-Line Pertuzumab and Trastuzumab Among Patients with HER2+ Metastatic Breast Cancer. *Oncol Ther*. 2023;11(4):481-493. doi:10.1007/s40487-023-00241-8

139. Cardoso F. Trastuzumab for ABC patients with ECOG 2 status. Published online August 2025.

140. Miglietta F, Visani L, Marini S, et al. Oligometastatic breast cancer: Dissecting the clinical and biological uniqueness of this emerging entity. Can we pursue curability? *Cancer Treat Rev*. 2022;110:102462. doi:10.1016/j.ctrv.2022.102462

141. Palma DA, Olson R, Harrow S, et al. Stereotactic Ablative Radiotherapy for the Comprehensive Treatment of Oligometastatic Cancers: Long-Term Results of the SABR-COMET Phase II Randomized Trial. *J Clin Oncol*. 2020;38(25):2830-2838. doi:10.1200/JCO.20.00818

142. Chmura SJ, Winter KA, Woodward WA, et al. NRG-BR002: A phase IIR/III trial of standard of care systemic therapy with or without stereotactic body radiotherapy (SBRT) and/or surgical resection (SR) for newly oligometastatic breast cancer (NCT02364557). *J Clin Oncol*. 2022;40(16_suppl):1007-1007. doi:10.1200/JCO.2022.40.16_suppl.1007

143. Garcia-Saenz JA, Lopez-Barajas IB, Echavarria I, et al. SEOM-GEICAM-SOLTI clinical guidelines in advanced breast cancer (UPDATE 2025). *Clin Transl Oncol*. Published online November 3, 2025. doi:10.1007/s12094-025-04102-w

144. Trial of Superiority of Stereotactic Body Radiation Therapy in Patients With Breast Cancer (STEREO-SEIN). Accessed December 10, 2025. https://www.clinicaltrials.gov/study/NCT02089100

145. Local Treatment in ER-positive/HER2-negative Oligo-metastatic Breast Cancer (CLEAR). Accessed December 10, 2025. https://clinicaltrials.gov/study/NCT03750396

146. Local Therapy for ER/PR-positive Oligometastatic Breast Cancer (LARA). ClinicalTrials.gov identifier: NCT04698252. Updated August 08, 2022. Accessed January 25, 2026.

147. Bringolf L, Pestalozzi B, Fink D, et al. Exploring prognostic factors for HER2-positive metastatic breast cancer: a retrospective cohort study in a major Swiss hospital. *Swiss Med Wkly*. 2016;146(5152):w14393. doi:10.4414/smw.2016.14393

148. Paluch-Shimon S, Biganzoli L, Torode J, et al. Ensuring access to multidisciplinary care in advanced breast cancer: a global expert review and call-to-action for 2025-2035 (Goal 4). *Breast Edinb Scotl*. 2025;84:104609. doi:10.1016/j.breast.2025.104609

149. Sassé B, Shaya S, Nimmo J, et al. Evaluating the impact of a tertiary multidisciplinary meeting in metastatic breast cancer: A prospective study. *The Breast*. 2025;79:103861. doi:10.1016/j.breast.2024.103861

150. Lindman H, Wiklund F, Andersen KK. Long-term treatment patterns and survival in metastatic breast cancer by intrinsic subtypes – an observational cohort study in Sweden. *BMC Cancer*. 2022;22(1):1006. doi:10.1186/s12885-022-10098-1

151. Plichta JK, Thomas SM, Wang X, et al. Survival among patients with untreated metastatic breast cancer: "What if I do nothing?" *Breast Cancer Res Treat*. 2024;205(2):333-347. doi:10.1007/s10549-024-07265-2

152. Biganzoli L, Battisti NML, Wildiers H, et al. Updated recommendations regarding the management of older patients with breast cancer: a joint paper from the European Society of Breast Cancer Specialists (EUSOMA) and the International Society of Geriatric Oncology (SIOG). *Lancet Oncol*. 2021;22(7):e327-e340. doi:10.1016/S1470-2045(20)30741-5

153. Tripathy D, Brufsky A, Cobleigh M, et al. *De Novo* Versus Recurrent HER2-Positive Metastatic Breast Cancer: Patient Characteristics, Treatment, and Survival from the SystHERs Registry. *The Oncologist*. 2020;25(2):e214-e222. doi:10.1634/theoncologist.2019-0446

154. Yardley DA, Kaufman PA, Brufsky A, et al. Treatment patterns and clinical outcomes for patients with *de novo* versus recurrent HER2-positive metastatic breast cancer. *Breast Cancer Res Treat*. 2014;145(3):725-734. doi:10.1007/s10549-014-2916-8

155. Danziger N, Sokol ES, Graf RP, et al. Variable Landscape of PD-L1 Expression in Breast Carcinoma as Detected by the DAKO 22C3 Immunohistochemistry Assay. *The Oncologist*. 2023;28(4):319-326. doi:10.1093/oncolo/oyad025

156. Batra A, Kong S, Cheung WY. Eligibility of real-world patients with metastatic breast cancer for clinical trials. *The Breast*. 2020;54:171-178. doi:10.1016/j.breast.2020.10.005

157. Malhotra K, Fenton JJ, Duberstein PR, et al. Prognostic accuracy of patients, caregivers, and oncologists in advanced cancer. *Cancer*. 2019;125(15):2684-2692. doi:10.1002/cncr.32127

158. Nahm SH, Martin AJ, Clayton JM, et al. Accuracy of oncologists' estimates of expected survival time in advanced cancer. *JNCI Cancer Spectr*. 2023;7(6):pkad094. doi:10.1093/jncics/pkad094

159. Kiely BE, Martin AJ, Tattersall MHN, et al. The Median Informs the Message: Accuracy of Individualized Scenarios for Survival Time Based on Oncologists' Estimates. *J Clin Oncol*. 2013;31(28):3565-3571. doi:10.1200/JCO.2012.44.7821

160. NHRMC Clinical Trials Centre. 3 Scenarios Prognosis Tool. 3 Scenarios Prognosis Tool. https://ctc.usyd.edu.au/3scenarios/

161. Te Aho o Te Kahu, Cancer Control Agency. Quality Improvement Monitoring Report – *Route to Diagnosis: People Diagnosed with Cancer within 30 Days of an Emergency or Acute (Unplanned) Hospital Admission*. Wellington, New Zealand. 2024.

162. Rocque GB, Blum JL, Ji Y, et al. Real-world quality-of-life of patients with HR+/HER2− advanced breast cancer treated with palbociclib plus endocrine therapy: EORTC QLQ-C30 results from POLARIS. *Breast Cancer Res Treat*. 2025;209(3):613-627. doi:10.1007/s10549-024-07524-2

163. Samjoo IA, Hall A, Chen C, et al. A systematic review of health-related quality of life outcomes in patients with advanced breast cancer treated with palbociclib. *J Comp Eff Res*. 2024;13(10):e240111. doi:10.57264/cer-2024-0111

164. Brain E, Chen C, Simon S, et al. Palbociclib in Older Patients with Advanced/Metastatic Breast Cancer: A Systematic Review. *Target Oncol*. 2024;19(3):303-320. doi:10.1007/s11523-024-01046-z

165. Cardoso F, Rihani J, Aubel D, et al. Abstract P4-12-03: Assessment of quality of life (QoL) in patients with metastatic breast cancer (MBC) in clinical practice: A real-world multi-country survey. *Cancer Res*. 2022;82(4_Supplement):P4-12-03-P4-12-03. doi:10.1158/1538-7445.SABCS21-P4-12-03

166. Trogdon JG, Liu X, Reeder-Hayes KE, et al. Productivity costs associated with metastatic breast cancer in younger, midlife, and older women. *Cancer*. 2020;126(18):4118-4125. doi:10.1002/cncr.33077

167. Hurvitz SA, Loi S, O'Shaughnessy J, et al. Tucatinib and trastuzumab emtansine for patients with previously treated HER2-positive locally advanced and metastatic breast cancer: primary analysis of the randomized phase III trial HER2CLIMB-02. *Ann Oncol*. Published online November 2025:S0923753425062635. doi:10.1016/j.annonc.2025.11.005

168. Australian Government Department of Health and Aged Care. Trastuzumab, powder for I.V. infusion, 60 mg and 150 mg, Herceptin. Accessed December 2, 2025. https://www.pbs.gov.au/pbs/industry/listing/elements/pbac-meetings/psd/2012-07/trastuzumab

169. Moser EC, Narayan G. Improving breast cancer care coordination and symptom management by using AI driven predictive toolkits. *Breast Edinb Scotl*. 2020;50:25-29. doi:10.1016/j.breast.2019.12.006

170. Karsten MM, Kühn F, Pross T, et al. PRO B study (GS1-06): Alarm-based patient-reported \outcome monitoring improves fatigue, quality of life, and survival in metastatic breast cancer. In: *Abstract GS1 06*,. 2024.

171. Fallowfield L, Boyle F, Haidinger R, et al. Improving communication between healthcare professionals and patients living with advanced breast cancer: a global expert review and call-to-action for 2025–2035 (Goal 5). *The Breast*. 2025;84:104610. doi:10.1016/j.breast.2025.104610

172. Bailo L, Guiddi P, Vergani L, et al. The patient perspective: investigating patient empowerment enablers and barriers within the oncological care process. *ecancermedicalscience*. 2019;13. doi:10.3332/ecancer.2019.912

173. World Health Organisation. Community empowerment. Community empowerment. https://www.who.int/teams/health-promotion/enhanced-wellbeing/seventh-global-conference/community-empowerment

174. Bravo P, Edwards A, Barr PJ, et al. Conceptualising patient empowerment: a mixed methods study. *BMC Health Serv Res*. 2015;15(1):252. doi:10.1186/s12913-015-0907-z

175. Rodríguez-Prat A, Pergolizzi D, Crespo I, et al. Control in patients with advanced cancer: an interpretative phenomenological study. *BMC Palliat Care*. 2022;21(1):97. doi:10.1186/s12904-022-00984-7

176. Wakefield D, Bayly J, Selman LE, et al. Patient empowerment, what does it mean for adults in the advanced stages of a life-limiting illness: A systematic review using critical interpretive synthesis. *Palliat Med*. 2018;32(8):1288-1304. doi:10.1177/0269216318783919

177. Kiely B, Travado L, Smith AL, et al. Increasing awareness of and referral to support services in advanced breast cancer: a global expert review and call-to-action for 2025–2035 (Goal 7). *The Breast*. 2025;84:104604. doi:10.1016/j.breast.2025.104604

178. Cabanes A, Gilchrist J, Zambon M, et al. Meeting the informational needs of people with advanced breast cancer: a global expert review and call-to-action for 2025–2035 (Goal 6). *The Breast*. 2025;84:104611. doi:10.1016/j.breast.2025.104611

179. Eniu A, Chidebe RCW, Vuylsteke P, et al. Improving equitable access to comprehensive care for people with advanced breast cancer: a global expert review and call-to-action for 2025–2035 (Goal 9). *The Breast*. 2025;84:104612. doi:10.1016/j.breast.2025.104612

180. Landeiro LCG, Martins TDC, Grigolon RB, et al. The burden of systemic therapy administration route in treating HER2-positive breast cancer (for patients, healthcare professionals, and healthcare system): a systematic literature review. *Front Pharmacol*. 2024;15:1338546. doi:10.3389/fphar.2024.1338546

181. Ciruelos EM, Díaz MN, Isla MD, et al. Patient preference for oral chemotherapy in the treatment of metastatic breast and lung cancer. *Eur J Cancer Care (Engl)*. 2019;28(6). doi:10.1111/ecc.13164

182. Patel KB, Turner K, Alishahi Tabriz A, et al. Estimated Indirect Cost Savings of Using Telehealth Among Nonelderly Patients With Cancer. *JAMA Netw Open*. 2023;6(1):e2250211. doi:10.1001/jamanetworkopen.2022.50211

183. McHutchison S, Desai T, Jones H, et al. Advancing the legal rights of people with advanced breast cancer: a global expert review and call-to-action for 2025–2035 (Goal 10). *The Breast*. 2025;84:104613. doi:10.1016/j.breast.2025.104613

184. Vasconcelos de Matos L, Borges M, Oliveira AT, et al. The impact on productivity costs of reducing unemployment in patients with advanced breast cancer: A model estimation based on a Portuguese nationwide observational study. Breast. 2025;79:103867. doi:10.1016/j.breast.2024.103867